CITY
ARITHMETICS

BOYLAN-SMITH

THIRD YEAR-FIRST HALF

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CITY ARITHMETICS

THIRD YEAR: FIRST HALF

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PREFACE

ONE noticeable weakness in elementary education of to-day is the pupil's inability to use a textbook correctly. The CITY ARITHMETIC is an effort to remove this weakness. The appeal is first and foremost to the pupil. The language used is within his comprehension; the explanations are such as he can easily grasp. The work advances step by step. The drill is ample and sufficiently varied, and the problems are within the experience of the average child. These are books which the pupils can use at home as well as in school.

Business men complain that boys and girls whom they employ cannot perform correctly the four fundamental operations. Teachers in the upper grades state that the pupils come to them so weak in addition, subtraction, multiplication, and division of integers that the work in the last three years is seriously handicapped. The authors feel that this is in part due to lack of persistent drill. To offset this, a large number of examples and problems in these operations has been furnished for daily practice.

Overemphasis on the explanation of processes and excessive variety of appeal to the interest of pupils are other causes of weakness in arithmetic. The authors have striven to avoid refinements of explanation, to eliminate processes with little practical application, and to provide an intelligent but not excessive variety of drill work.

Every teacher knows how heavy a burden is the organization of material. These books lift the burden. A moderate spiral is used. In the third and fourth years, the work has been arranged by weeks and with the greatest care. In the fifth and sixth years, the work has been arranged by months; in the seventh and eighth years, the arrangement is topical. Easy examples have been selected for the beginning of each term and the matter is presented in a way that avoids the usual stumblings and discouragements.

Type problems for each grade have been given to illustrate how particular methods are to be carried out and to show with how much detail each subject is to be presented.

Ample material for oral drill has been furnished, and a great number of examples and problems has been introduced so that teachers may lay stress on any phase of the work that requires emphasis. How many of these examples and problems are to be worked by the class, the teacher herself may decide, according to the needs of the pupils.

PLAN OF WORK

In the arithmetic work of the first half of the third year special emphasis is placed on multiplication and United States money. As a preliminary to multiplication, frequent drills in oral counting are given. The multiplication tables are carefully developed and adequate drill is given by means of charts, diagrams, and other devices. The abundance of exercises in the fundamental operations provides ample material for review, for individual seat work, and for continuing the work of the school at home when special conditions make it desirable.

The authors feel that the exact apportionment of both review and advance work by weeks gives the teacher a sense of security and confidence that makes for better results in the teaching of elementary arithmetic.

It is not necessary that the teacher follow the order of the exercises as they appear in the book. Indeed, it is not the authors' intention that everything should be taught exactly in the order in which it is set down. For instance, the teacher should not assign all the examples in written addition in any one week before the written subtraction is taken up. Some of the oral work may be repeated several times in the course of the week.

The plan of the book covers sixteen weeks. The remaining weeks of the term may be used by the teacher for review or for reënforcing any particular phase of the work in which the pupils have shown weakness.

The work of this half year includes the following:

Reading and writing Arabic numbers to 10,000, Roman numbers through XX, and dollars and cents in the decimal form.

Counting by 2's and 3's, beginning with any number and continuing to 100.

Addition: oral, adding numbers of one digit to all numbers less than 100; and *written,* adding numbers of five addends, the sum to be less than 10,000, including dollars and cents.

Subtraction: oral, subtracting numbers of one digit from numbers less than 100; and *written,* subtracting by the addition process, both minuend and subtrahend to be less than 10,000, including dollars and cents.

Multiplication: oral, the tables through 5×12, including factoring within the tables; and *written,* with multipliers of one digit within the tables, including carrying.

Division: oral, the tables through 5×12, including exercises in finding factors; and *written,* including division by one digit, each figure of the dividend to be a multiple of the divisor.

Fractions: oral and written exercises developing halves, fourths, thirds, sixths, and tenths of numbers within the tables already studied.

Problems involving simple work in the fundamental operations of the third grade.

Finding time by the clock: a series of graded practical questions.

INTRODUCTION

For counting, the teacher will find it advisable to prepare a large cardboard chart on the following plan.

0	10	20	30	40	50	60	70	80	90
1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99

The teacher, pointing to any number as a starting point, calls on a pupil to count by 2, by 5, or by any other increment within the scope of the lesson. The pupil, pointer in hand, counts aloud, pointing to the numbers required.

As soon as the class is proficient in this method of counting, the exercise may be conducted without the chart. With each new increment, it would be wise to use the two methods alternately.

In the early work of the Third Grade, the teacher should appeal to the eye by writing the results. For example, in counting by 2 without the chart, the pupil, beginning at 1, gives the answer 3 (teacher writes 3), then 5 (teacher writes 5), etc. The pupil's answers will then appear on the blackboard thus:

1	11	21
3	13	23
5	15	25
7	17	27
9	19	29

The results in counting by other increments should be written on the blackboard in the same way.

ADDITION AND SUBTRACTION CHART

A large cardboard chart like the following should be used for rapid drill work in addition and subtraction throughout the term.

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

In using this chart, the teacher names the increment and then points to the figures in their order, for the purpose of emphasizing work by tens. For example, the teacher says, "Add 6," and points to 0, 10, 20, etc., down the column, then to 4, 14, etc., and other columns.

Following this addition work by tens, the teacher should point to numbers out of their regular order on the chart, calling on the pupils to add a given number.

To vary the plan of presentation, allow the pupils to ask the questions. Send a pupil to the chart, and let him call on the pupils in his row to add, according to his direction.

Put the rows in competition, each under its leader. Let the class appoint scorers to keep an account of errors.

Again, divide the class into teams of five or more each, each team to be known by the name of its captain. Keep a record for a week and allow the winning team to act as captains for the next week.

The teacher may divide the class into two opposing teams and conduct the exercises as she would a spelling match.

Many other devices will occur to the alert teacher.

MULTIPLICATION CHARTS

Charts like the following, written on large pieces of cardboard, may be used for rapid drills in multiplication throughout the term.
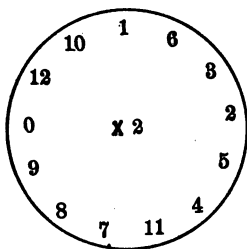
Divide the class and conduct the drills as described above for the drills in addition and subtraction. Multiply the numbers on the circumference or perimeter by the number inside. If a pupil makes a mistake, let him *correct himself* by writing the number twice and adding, or by the counting process.

The same charts may be used with 3, 4, etc., as multipliers by pinning a movable multiplier ($\times 3$, $\times 4$, etc.) over the original multiplier written on the chart.

DIVISION CHART

For rapid drill in division, a chart of cardboard like the one below is recommended.

3	10	16	21	27	33	40	55	
2	6	12	20	25	30	44	50	÷ 2
5	8	14	22	28	35	45	48	$\frac{1}{2}$ of
4	9	15	18	24	32	36	60	

Point to ÷ 2 or $\frac{1}{2}$ of and then to multiples of 2 up to 24, and ask the children to give the answers.

Replace ÷ 2 and $\frac{1}{2}$ of by ÷ 3 and $\frac{1}{3}$ of.   Point to the latter and then to multiples of 3 up to 36, asking the children to give the answers.

The movable divisor 4 is to be used with multiples of 4 to 48, and 5 with multiples of 5 to 60.

THIRD YEAR: FIRST HALF

FIRST WEEK

READING NUMBERS

Read the number 259.

In the number 259, the 9 is in **units'** place, the 5 is in **tens'** place, and the 2 is in **hundreds'** place.

The number may be written $\overset{\text{h.}}{2}\ \overset{\text{t.}}{5}\ \overset{\text{u.}}{9}$. These places are called **orders.**

To read numbers correctly, we must know the names of the orders or places.

A number having one figure, like the number 7, is called a number of *one order*.

A number having two figures, like 36, is called a number of *two orders*.

A number having three figures, like 259, is called a number of *three orders*.

1. Oral Exercises.

1. How many orders are there in the number 29? 8? 246? 70? 401? 32? 7?

2. Tell the order of each figure in the number 375. In 39. 250. 4. 12.

3. Read:
| 799 | 700 | 106 | 701 | 909 |
| 824 | 110 | 604 | 980 | 429 |

4. How many orders are there in the number 1,000? The figure 1 stands in **thousands'** place. We call the fourth order the thousands' order.

5. Read:
| 2,000 | 5,000 | 4,000 | 8,000 |
| 6,000 | 7,000 | 3,000 | 9,000 |

When we write numbers of four orders, or more than four, we place a comma between the hundreds' order and the thousands' order.

Count three places from the right and then write the comma, between the hundreds' and the thousands' orders.

WRITING NUMBERS

2. Written Exercises.

Numbers are sometimes written in words and some-times in figures.

1. Write the following numbers one under another. At the top of each column write a letter to show the order of each figure in that column.

Three hundred fifty-six. Three hundred eleven.

Seven hundred nine. Eight hundred thirteen.

Four hundred ten. Nine hundred nineteen.

2. Write the following numbers in a column, putting the letters *th, h, t, u,* at the top. Remember the comma.

One thousand. Four thousand.

Two thousand. Eight thousand.

Three thousand. Seven thousand.

COUNTING

3. Oral Exercises.

1. Using the Counting Chart,[1] count by 2's:

From 0 to 58.	From 12 to 38.
From 2 to 36.	From 11 to 51.
From 1 to 49.	From 20 to 62.
From 17 to 79.	From 6 to 46.

You will notice that when we count by 2's, we skip one number each time.

2. Count by 2's without using the chart:

From 2 to 50.	From 1 to 49.
From 0 to 42.	From 5 to 45.

3. Count by 5's from 40 to 95.   From 0 to 35.

ADDITION

4. Oral Exercises.

1. John has 8 apples and Mary has 5.   How many apples have John and Mary together?

2. Max has 4 cents.   Joe has 6 cents more than Max. How many cents has Joe?

3. Add 9 and 7.

The answer in addition is called the **sum**.

4. Find the sum of 7 and 6.

5. Find the sum of 8 and 4.

6. What is the sum of 5 and 6?

[1] To THE TEACHER.   See page 7 for directions concerning the charts.

7. Using the Addition Chart, add 2 to each number. Begin with the first column and take the numbers in order down the column. In answering, give the sums only.

5. Written Exercises.

1. Add 824, 367, and 293.

824	The sum of 3, 7, 4 is 14. Write 4 under units' column and carry the 1 to the next column.
367	The sum of (1 + 9) 10, 6, 2 is 18. Write the 8 under tens' column and carry the 1 to the next column.
293	The sum of 3, 3, 8 is 14. Write the 4 in hundreds'
1,484	column and place the 1 in the next column.
	The sum is 1,484.

Copy the following numbers and add:

2.	98	3.	76	4.	246	5.	369	6.	69
	73		304		97		249		248
	6		88		328		37		9
	287		49		240		303		70
	40		406		35		27		403

7.	327	8.	248	9.	400	10.	73	11.	600
	96		5		76		69		86
	208		73		188		472		72
	215		379		34		27		105
	157		204		206		209		9

Prove that you have added Exs. 8, 9, and 10 correctly.

To prove that your adding is correct, *add the numbers again in the opposite direction.*

SUBTRACTION

6. Oral Exercises.

1. John had 5 marbles and gave away 2. How many were left?

2. From 5 take away 2.

3. Take 2 from 5.

4. From 5 subtract 2.

5. Subtract 2 from 5.

6. Will has 5 marbles and James has 2 less. How many has James?

7. 5 less 2 is how many?

8. $5 - 2 = ?$

9. Edward has 2 cents. How many more cents must he earn to have 5 cents?

10. Two and how many more make 5?

The answer in subtraction is called the **difference** or **remainder**.

11. What is the difference between 5 and 8?

12. What is the difference between 2 and 9?

13. What remainder do you get when you subtract 3 from 10?

14. What remainder do you get when you take 6 from 9?

15. Using the Subtraction Chart, subtract 2 from each number greater than 2. Begin with the first column and take the numbers in order down the column.

7. Written Exercises.

1. Subtract 435 from 678.

```
          5 and what make 8?   5 and 3 make 8.   Write 3
        under 5.
  678     3 and what make 7?   3 and 4 make 7.   Write 4
− 435   under 3.
  243     4 and what make 6?   4 and 2 make 6.   Write 2
        under 4.
          The answer is 243.
```

In this example, 678 is called the **minuend,** 435 is called the **subtrahend,** and 243 is the **difference** or **remainder.**

Subtract:

2.	968	**3.**	487	**4.**	359	**5.**	695	**6.**	897
	− 325		− 123		− 137		− 142		− 352

7. From 442 subtract 264.

```
          4 is greater than 2.  4 and what make 12?  4 and
        8 make 12.   Write 8 under 4.
          Carry the 1 to the 6, making it 7.
  442     7 and what make 14?  7 and 7 make 14.   Write
− 264   7 under 6.
  178     Carry the 1 to the 2, making it 3.
          3 and what make 4?  3 and 1 make 4.   Write 1
        under 2.
          The answer is 178.
```

Read the following numbers. Copy them and subtract:

8.	536	**9.**	857	**10.**	972	**11.**	400	**12.**	502
	− 429		− 564		− 86		− 236		− 97

Read the following numbers. Copy them and find the remainders :

13.	756	15.	427	17.	257	19.	200	21.	522
	− 239		− 356		− 48		− 74		− 108

14.	212	16.	686	18.	450	20.	316	22.	921
	− 72		− 247		− 162		− 287		− 387

23. In Ex. 13, when we subtract 239 from 756, what is the remainder?

Add this remainder to 239.   What do we get?

If we get 756, our subtraction was correctly done.

In a subtraction example, if we *add the remainder to the smaller number and get the larger number*, we have proved our subtraction to be correct.

24. Prove Exs. 14, 15, 16, 17, and 18 in this way.

READING NUMBERS; ROMAN NUMBERS

8. Oral Exercises.

1. Read : 786   304   430   806   73

       13   401   611   362   409

       31   899   2,000   5,000   8,000

      910   401   3,000   7,000   1,000

2. How many orders are there in the following numbers?

    28   2,000   362   9   8,000

3. Give the order of each figure in the following numbers :

         324   5,000   78   309

4. In reading and writing Roman numbers up to 40, we use only three characters : **I** for 1, **V** for 5, and **X** for 10.

To express *two,* we place I and I together ; to express *three,* we place I and I and I together. But to express *four,* we subtract I from V by placing I in front of V.

When a smaller number is placed in front of a larger number, we subtract. IX expresses *nine.*

When a smaller number is placed after a larger number, we add. XI stands for *eleven ;* XII stands for *twelve.*

5. Read the following Roman numbers :

      V   X   I   VI   IV   IX

    III   VII   XI   II   VIII   XII

WRITING NUMBERS; DOLLARS AND CENTS

9. Written Exercises.

1. Write the following numbers in a column. Be very careful to put units under units, tens under tens, hundreds under hundreds, and thousands under thousands. Write at the top of the columns *th, h, t, u.*

Six hundred four.	One thousand.
Three hundred ten.	Five hundred fifteen.
Seven thousand.	Eight hundred eleven.
Four hundred forty.	Seven hundred four.

2. The sign **$** is used in writing dollars. *Five dollars* is written $5.

3. Write the following amounts:

Seven dollars.	Four hundred two dollars.
Twenty-four dollars.	Three hundred ten dollars.
Two hundred dollars.	One thousand dollars.

4. *One cent* is written $.01. *Two cents* is written $.02.

5. Write the following amounts:

Three cents.	Six cents.	Four cents.	Nine cents.
Five cents.	Eight cents.	Seven cents.	One cent.

6. *Ten cents* is written $.10. *Twenty-five cents* is written $.25.

7. Write the following amounts:

Seventeen cents.	Thirty-three cents.	Eighty-four cents.
Fourteen cents.	Forty-nine cents.	Seventy-five cents.

COUNTING

10. Oral Exercises.

Using the Counting Chart,

1. Count by 2's from 49 to 99.

2. Count by 4's from 36 to 84.

3. Count by 3's from 3 to 57.

You noticed that when we counted by 2's, we skipped one number each time. How many numbers do we skip when we count by 3's?

4. Without using the chart, count by 3's from 3 to 36. From 36 to 57.

ADDITION

11. Oral Exercises.

Use the Addition Chart for the following examples.

1. Add 3 to each number in the first column.

2. Add 3 to each number in the other columns.

3. Add 2 to each number on the chart.

12. Written Exercises.

Copy the following numbers and add:

1.	2.	3.	4.	5.
46	724	79	4	424
208	96	186	198	3
73	4	50	23	99
8	100	304	370	205
690	98	178	289	74

	6. 57	7. 309	8. 276	9. 320	10. 288
	208	48	83	98	47
	93	267	430	274	480
	474	90	9	38	39
	39	273	186	167	186

11. Prove Exs. 1, 2, 3, 4, 5.

SUBTRACTION

13. Oral Exercises.

Use the Subtraction Chart for the following examples.

1. Subtract 3 from all numbers greater than 3, going down each column in order.

2. Subtract 2 from each number greater than 2.

14. Written Exercises.

Copy the following numbers and find the remainders :

1.	725	3.	300	5.	250	7.	363	9.	900
	− 244		− 98		− 107		− 287		− 899
2.	806	4.	573	6.	392	8.	270	10.	403
	− 397		− 276		− 87		− 129		− 298

11. Prove Exs. 6, 7, 8, 9, 10.

MULTIPLICATION

15. Oral Exercises.

1. Will has 2 marbles in each hand. How many marbles has he?

2. How much are two 2's? $2 + 2 = ?$

3. How much is 2 times 2? We often write this 2×2.

The sign $\times$ is read "times," and is called the **sign of multiplication.**

4. How much is $2 + 2 + 2 + 2$?

5. How much are four twos?   **6.** How much is 4×2?

7. Count by 2's from 0 to 24.

8. Add each column:

			2
		2	2
	2	2	2
2	2	2	2
One 2 =	Two 2's =	Three 2's =	Four 2's =

We know that $4 \times 2 = 8$ and $2 + 2 + 2 + 2 = 8$. *Multiplication is a short way of adding equal numbers.*

9. Learn the following table:

MULTIPLICATION TABLE OF TWOS	
One 2 is 2	$1 \times 2 = 2$
Two 2's are 4	$2 \times 2 = 4$
Three 2's are 6	$3 \times 2 = 6$
Four 2's are 8	$4 \times 2 = 8$
Five 2's are 10	$5 \times 2 = 10$
Six 2's are 12	$6 \times 2 = 12$
Seven 2's are 14	$7 \times 2 = 14$
Eight 2's are 16	$8 \times 2 = 16$
Nine 2's are 18	$9 \times 2 = 18$
Ten 2's are 20	$10 \times 2 = 20$
Eleven 2's are 22	$11 \times 2 = 22$
Twelve 2's are 24	$12 \times 2 = 24$

10. Give answers rapidly :

Six 2's =	6 × 2 =	Twelve 2's =	12 × 2 =
Three 2's =	3 × 2 =	Five 2's =	5 × 2 =
Nine 2's =	9 × 2 =	Two 2's =	2 × 2 =
Four 2's =	4 × 2 =	Eight 2's =	8 × 2 =
Seven 2's =	7 × 2 =	Eleven 2's =	11 × 2 =
One 2 =	1 × 2 =	Ten 2's =	10 × 2 =

16. Oral Exercises.

1. Add these columns :

1	2	3	4
1	2	3	4
Two 1's =	Two 2's =	Two 3's =	Two 4's =

2. Learn the following table :

Two 1's are 2	2 × 1 = 2
Two 2's are 4	2 × 2 = 4
Two 3's are 6	2 × 3 = 6
Two 4's are 8	2 × 4 = 8
Two 5's are 10	2 × 5 = 10
Two 6's are 12	2 × 6 = 12
Two 7's are 14	2 × 7 = 14
Two 8's are 16	2 × 8 = 16
Two 9's are 18	2 × 9 = 18
Two 10's are 20	2 × 10 = 20
Two 11's are 22	2 × 11 = 22
Two 12's are 24	2 × 12 = 24

The word *twice* means the same as *two times*.

3. Answer rapidly :

Two 4's =	2 × 4 =	Two 1's =	2 × 1 =
Two 8's =	2 × 8 =	Two 5's =	2 × 5 =
Two 2's =	2 × 2 =	Two 11's =	2 × 11 =
Two 12's =	2 × 12 =	Two 6's =	2 × 6 =
Two 9's =	2 × 9 =	Two 10's =	2 × 10 =
Two 3's =	2 × 3 =	Two 0's =	2 × 0 =
Two 7's =	2 × 7 =	Twice 4 =	Twice 7 =

4. Notice that *whenever we multiply 0 by any number, the answer is 0.*

5. Show by addition that

(*a*) 2 times 3 is the same as 3 times 2.

(*b*) Two fours are the same as four twos.

(*c*) 2 × 6 = 6 × 2.

(*d*) 2 times 8 = 8 times 2.

(*e*) Two sevens equal seven twos.

(*f*) 2 × 5 = 5 × 2.

(*g*) Nine 2's are the same as two 9's.

(*h*) 2 × 11 = 11 × 2.

(*i*) 10 times 2 = 2 times 10.

(*j*) 2 twelves = 12 twos.

17. Written Exercises.

Add 32 and 32.

$$\begin{array}{r} 32 \\ 32 \\ \hline 64 \end{array}$$

Another way to work this example is by multiplying 32 by 2.

$$
\begin{array}{r}
32 \\
\times\ 2 \\
\hline
64
\end{array}
$$

32 consists of 2 units and 3 tens.

2 times 2 units are 4 units.   Write the 4 in units' place.

2 times 3 tens are 6 tens.   Write the 6 in tens' place.

Therefore 2 times 32 is 64.

In this example, 32 is called the **multiplicand,** 2 is called the **multiplier,** and the answer 64 is the **product**.

Copy and work the following examples:

1.	23 × 2	**2.**	42 × 2	**3.**	24 × 2	**4.**	22 × 2	**5.**	21 × 2
6.	13 × 2	**7.**	41 × 2	**8.**	43 × 2	**9.**	33 × 2	**10.**	34 × 2
11.	22 × 4	**12.**	21 × 3	**13.**	21 × 4	**14.**	22 × 3	**15.**	44 × 2

SUPPLEMENTARY EXAMPLES

I. Addition.

Copy the following and add:

1. 27	2. 376	3. 483	4. 8	5. 94
408	57	9	167	268
95	8	154	`39	5
180	206	63	284	156
9	75	187	276	37

6. 5	7. 209	8. 378	9. 586	10. 284
108	35	56	49	165
76	174	9	8	208
293	68	273	57	117
389	157	92	105	209

II. Subtraction.

1. 801	4. 347	7. 852	10. 573	13. 903
− 576	− 179	− 178	− 169	− 298

2. 831	5. 730	8. 652	11. 654	14. 533
− 394	− 284	− 373	− 279	− 437

3. 824	6. 395	9. 451	12. 925	15. 713
− 426	− 198	− 245	− 766	− 246

THIRD WEEK

READING NUMBERS; ROMAN NUMBERS

18. Oral Exercises.

1. Read the following numbers:

360	704	638	990	306
803	460	180	2,000	9,000

2. In the number 2,500, what place does the 2 occupy? What place does the 5 occupy?

The number 2,500 is read "two thousand five hundred."

3. Read the following numbers:

3,600	9,700	2,100	8,900	4,800
2,600	6,900	9,900	6,300	6,700

4. Read again carefully the lesson about Roman numbers on page 18.

5. How do you express *four* in Roman numbers? *Six? Nine? Eleven?*

6. What does XIII mean?

7. What does XV mean?

8. What does XVI mean?

9. What does XIV mean?

WRITING NUMBERS

19. Written Exercises.

Write the following numbers:

1. Eight hundred three.
2. Three hundred ninety-nine.
3. Four hundred sixty.
4. Seven hundred seven.
5. Nine hundred ninety.
6. Seven thousand.
7. Five thousand.
8. Four thousand three hundred.
9. Two thousand one hundred.
10. Two thousand two hundred.

DOLLARS AND CENTS

When we wish to write dollars and cents together, we must place a cent point (.) between the dollars and the cents. *Five dollars and twenty-four cents* is written $5.24.

20. Oral Exercises.

Read the following amounts:

$7.25	$8.00	$71.04	$8.77	$8.11
$19.35	$15.16	$99.99	$20.35	$20.02
$47.66	$11.01	$17.09	$17.86	$50.02
$15.70	$16.95	$27.01	$70.00	$37.10

21. Written Exercises.

In writing dollars and cents in a column, for addition or subtraction, keep dollars under dollars, cents under cents, and cent point under cent point. Be sure to have only two places for cents.

Write the following amounts :

1. Eight dollars and seventy-five cents.
2. Thirty-six dollars and nineteen cents.
3. Ten dollars and sixteen cents.
4. Forty dollars and thirty-five cents.
5. Nine dollars and six cents.
6. Nine dollars and sixty cents.
7. Thirty-four dollars and eight cents.
8. Thirty-four dollars and eighty cents.
9. Twenty dollars and fifty cents.
10. Twenty dollars and five cents.

COUNTING

22. Oral Exercises.

1. Count by 3's from 1 to 49.
2. Count by 2's from 7 to 77.
3. Count by 5's from 15 to 75.

ADDITION

23. Oral Exercises.

Use the Addition Chart for these exercises.

1. Add 4 to each number on the chart, beginning at the top of each column and going down the column.

2. Add 3 to each number, in the same way.

3. Add 2 in the same way.

4. Give answers to the following:

8	7	9	5	6
3	2	6	4	5
4	5	1	3	2

4	3	5	4	3
1	7	7	4	5
6	4	2	7	7

24. Written Exercises.[1]

Add:

1. 328	**2.** 29	**3.** 268	**4.** 89	**5.** 342
93	187	19	371	120
256	6	373	24	63
9	94	100	206	9
107	586	88	97	270

6. $ .27	**7.** $6.25	**8.** $ .56	**9.** $3.27	**10.** $ .08
3.06	1.09	2.80	.97	2.17
.95	.64	.77	.08	3.09
1.60	.08	3.24	4.03	.76
.77	1.73	.91	.78	.89

Notice that the dollar sign ($) is used only with the first number in a column of dollars and cents.

---

[1] To THE TEACHER. Hereafter, several examples in addition and subtraction should be proved each week.

SUBTRACTION

25. Oral Exercises.

1. Using the Subtraction Chart, subtract 4 from each number larger than 4, going down each column in order.

2. Subtract 3 in the same way.

3. Subtract 2 in the same way.

26. Written Exercises.

Subtract :

1. 250 − 135	**3.** 376 − 287	**5.** 200 − 11
2. 624 − 509	**4.** 124 − 25	**6.** 457 − 32

7. Find the difference between 776 and 487.

8. Find the difference between 257 and 249.

9. Find the difference between 209 and 305.

10. Find the difference between 702 and 694.

11. Find the difference between 300 and 1.

12. Find the difference between 327 and 411.

MULTIPLICATION

27. Oral Exercises.

1. Repeat the multiplication table of twos.

2. How much is 2 times 5 ?   5 times 2 ?

3. 2 times 1 = ?   1 times 2 = ?

4. How much is 2 times 4 ?   4 times 2 ?

5. Give products :

2 × 6	6 × 2	2 × 10	10 × 2
2 × 11	11 × 2	2 × 5	5 × 2
2 × 9	9 × 2	2 × 3	3 × 2
2 × 7	7 × 2	2 × 0	0 × 2

28. Written Exercises.

Multiply :

1. 224×2 **3.** 31×2 **5.** 144×2 **7.** 32×2 **9.** 21×6

2. 122×2 **4.** 423×2 **6.** 342×2 **8.** 233×2 **10.** 21×5

11. Multiply 20 by 2.

$$\begin{array}{r} 20 \\ \times\ 2 \\ \hline 40 \end{array}$$ Two naughts are 0.   Write the 0 in the units' column.
Two 2's are 4.   Write the 4 in the tens' column.

Multiply :

12. 30×2 **14.** 40×2 **16.** 110×2 **18.** 102×2 **20.** 240×2

13. 202×4 **15.** 212×3 **17.** 404×2 **19.** 221×4 **21.** 222×4

29. Oral Problems.

1. John has 7 cents and Mary has 5 cents.   How many cents have they both?

2. Two boys put their marbles in a ring.   Alec put in 20 and James put in 7.   How many marbles were in the ring?

3. Sam spent 5 cents for a top and 8 cents for candy. How much did he spend?

4. I spent 6 cents for a pen, 4 cents for an eraser, and 5 cents for a notebook. How much did I spend in all?

5. If you write 7 answers in one column, 5 in another, and 4 in a third column, how many answers do you write?

6. Jack studied 3 hours on Monday, 2 hours on Tuesday, and 4 hours on Wednesday. How many hours did he study?

7. Mary has 19 pencils and I have 5 pencils. How many have we together?

8. Annie had 10 cents. She earned 8 cents more. How many cents did she have then?

9. Mother had 4 eggs in the pantry. She bought 24 more. How many did she have then?

10. Jacob had 11 tops. Morris gave him 4 more. How many did Jacob have then?

30. Written Problems.

1. John has 57 cents and Mary has 28 cents. How many cents have they both?

2. Two boys put their marbles into an empty box. Alec put in 37 and James put in 65. How many marbles were there in the box?

3. Sam spent 29 cents for tops and 25 cents for candy. How much did he spend?

4. I spent $27 for a coat, $4 for shoes, and $5 for a hat. How much did I spend in all?

5. Sarah read 34 pages in her Reader one week, 28 pages the second week, and 14 pages the third week. How many pages did she read in three weeks?

6. Jack walked 15 miles one week, 19 miles the next week, and 17 miles the third week. How many miles did he walk in the three weeks?

7. Mr. Black has 78 chickens and my father has 65 chickens. How many have they together?

8. Annie had 67 cents. She earned 15 cents. How many cents has she now?

9. Mother bought 72 yards of braid in one piece and 45 yards in another. How many yards of braid did she buy?

10. Jacob had $80 in the bank and had $24 in his pocket. How much did he have in all?

SUPPLEMENTARY EXAMPLES

I. Addition.

1. $84 + 9 + 208 + 176 + 43 =$
2. $300 + 47 + 138 + 305 + 96 =$
3. $7 + 322 + 409 + 87 + 148 =$
4. $26 + 403 + 87 + 266 + 18 =$
5. $9 + 363 + 206 + 84 + 167 =$
6. $53 + 462 + 9 + 87 + 358 =$
7. $309 + 67 + 148 + 25 + 237 =$
8. $457 + 19 + 224 + 8 + 160 =$
9. $191 + 57 + 245 + 39 + 365 =$
10. $27 + 465 + 98 + 206 + 59 =$

II. Subtraction.

1. $204 - 6 =$
2. $301 - 209 =$
3. $210 - 27 =$
4. $528 - 362 =$
5. $400 - 295 =$
6. $703 - 576 =$
7. $210 - 175 =$
8. $400 - 259 =$
9. $2,300 - 525 =$
10. $1,000 - 235 =$
11. $346 - 179 =$
12. $517 - 389 =$

III. Multiplication.

1. $301 \times 2 =$
2. $230 \times 2 =$
3. $141 \times 2 =$
4. $343 \times 2 =$
5. $211 \times 3 =$
6. $211 \times 4 =$
7. $112 \times 3 =$
8. $140 \times 2 =$
9. $401 \times 2 =$
10. $412 \times 2 =$
11. $313 \times 2 =$
12. $413 \times 2 =$
13. $201 \times 4 =$
14. $424 \times 2 =$
15. $243 \times 2 =$
16. $122 \times 4 =$
17. $304 \times 2 =$
18. $302 \times 2 =$
19. $210 \times 4 =$
20. $201 \times 3 =$
21. $120 \times 3 =$
22. $120 \times 4 =$
23. $443 \times 2 =$
24. $102 \times 4 =$
25. $402 \times 2 =$
26. $231 \times 2 =$
27. $122 \times 3 =$
28. $220 \times 4 =$
29. $344 \times 2 =$
30. $241 \times 2 =$
31. $102 \times 3 =$
32. $220 \times 3 =$

FOURTH WEEK

**READING AND WRITING NUMBERS; DOLLARS AND
CENTS**

31. Exercises.

1. Read the following numbers:

308	480	605	301	499
5,000	3,000	4,100	2,300	9,400

2. Write:

Seven hundred six.　　　　Six hundred ninety.

Four hundred twenty.　　　Four hundred nineteen.

Nine hundred one.　　　　Three thousand two hundred.

3. Read the following amounts:

$6.99	$7.99	$16.01	$20.20
$17.12	$24.24	$12.95	$20.90

4. Write the following amounts in a column. Be careful
to place dollars under dollars, cents under cents, and cent
point under cent point.

> Eleven dollars and twenty cents.
>
> Four dollars and one cent.
>
> Sixteen dollars and ninety-nine cents.
>
> Seven dollars and seventy cents.

COUNTING

32. Oral Exercises.

1. Count by 3's from 49 to 100.

2. Count by 2's from 71 to 97.

3. Count by 4's from 16 to 64.

ADDITION

33. Oral Exercises.

1. Add:

6	2	3	5	2
3	5	2	3	7
9	7	5	8	9
2	3	1	1	1
4	4	7	4	5
6	7	8	5	6

2. Using the Addition Chart, begin at the top of each column and add 2 to each number.

3. In the same way, add 4 to each number.

4. Add 3 to each number.

34. Written Exercises.

Find the sums:

1.	**2.**	**3.**	**4.**	**5.**
275	24	200	69	208
68	70	89	186	8
9	277	248	18	359
307	94	167	206	76
160	288	79	370	470

6.	**7.**	**8.**	**9.**	**10.**
$2.48	$3.50	$2.27	$ .08	$ .37
1.08	2.07	.92	3.07	5.08
.76	.83	.66	.62	.25
.45	1.54	.08	2.45	1.06
.67	2.09	5.72	1.30	.43

11. Find the sum of

Three hundred seventy,
Eighty-seven,
Four hundred ninety-six,
Fifty-eight,
One hundred ninety-nine.

12. Add the following:

Two hundred,
Three hundred nine,
One hundred ninety,
Seventy-eight,
Eleven.

SUBTRACTION

35. Oral Exercises.

1. Using the Subtraction Chart, begin at the top of each column and subtract 3 from each number larger than 3.

2. Subtract 4 in the same way.

36. Written Exercises.

When we subtract dollars and cents from dollars, we must place two naughts after the cent point in the minuend. Notice Exs. 1, 2, and 3, below.

Subtract:

1. $5.00	**2.** $4.00	**3.** $5.00	**4.** $3.01	**5.** $6.72
− 3.75	− 3.78	− 2.91	− 1.97	− 3.89

6. 6,800 − 5,900   **7.** 7,200 − 2,400   **8.** 6,100 − 4,800

9. Find the difference between 1,000 and 375.

10. Find the difference between 7,400 and 6,800.

11. Find the difference between 4,800 and 3,900.

12. Find the difference between 764 and 699.

MULTIPLICATION

37. Oral Exercises.

1. Repeat the multiplication table of twos.

2. Give answers:

2×3+1=	3×2+1=	2×2+1=	2×1+1=
4×2+1=	5×2+1=	2×6+1=	6×2+1=
7×2+1=	2×9+1=	9×2+1=	2×8+1=

38. Written Exercises.

Multiply:

1.	242	2.	314	3.	403	4.	340	5.	221
	× 2		× 2		× 2		× 2		× 3

6. Multiply 37 by 2.[1]

EXPLANATION

2 times 7 units is 14 units, or 1 ten and 4 units.

37
2
——
74

Write the 4 units in the units' place and carry the 1 to the next column.

2 times 3 tens is 6 tens, plus 1 ten is 7 tens.

Write the 7 tens in the tens' place.

The answer is 74 or 7 tens and 4 units.

SHORTER WAY

37
2
——
74

2 times 7 is 14. Write the 4 and carry the 1.

2 times 3 is 6, plus 1 is 7.

---

[1] TO THE TEACHER. The first method of multiplying gives the reasons for each step, and should be followed until the pupils thoroughly understand it. The second method should be followed exclusively after the first has served its purpose.

Give products:

7.	27	9.	35	11.	19	13.	46	15.	38
	× 2		× 2		× 2		× 2		× 2

8.	21	10.	22	12.	12	14.	21	16.	22
	× 8		× 7		× 9		× 6		× 5

39. Oral Problems.

1. Tom paid 8¢ for a top and sold it for 12¢. How much did he gain?

2. John paid 8¢ for a strap and sold it for 5¢. How much did he lose?

3. A dealer paid 8¢ for a box of crayons and sold it to Frank for 13¢. How much did he make?

4. A dealer bought a pencil box for 7¢ and sold it to Tom for 12¢. How much did he gain?

5. Peter made a kite that cost him 6¢. He sold it to Jack for 15¢. How much did Peter make?

6. Jane paid $1.00 for her skates. She sold them to Emma for $.50. How much did she lose?

7. Our grocer paid 10 cents a quart for berries and sold them for 15 cents a quart. How much did he make on each quart he sold?

8. I bought a bicycle for $15 and sold it to Nat for $9. How much did I lose?

9. Tony, the fruit man, paid 14 cents a pound for figs and sold them for 20 cents a pound. How much did he make on each pound he sold?

10. There were 20 postage stamps on my desk. I used 6 of them. How many are left?

11. Frank had 5 examples correct on Monday, 9 correct on Tuesday, and 6 correct on Wednesday. How many examples did he have correct for the three days?

12. There were 25 words in the spelling test. May failed on 6. How many did she have correct?

THE SCHOOL LUNCHROOM

40. **Oral Problems.**

PRICES IN THE SCHOOL LUNCHROOM

Soup	4¢	Sandwiches:	
Milk	3¢	Chicken	6¢
Cocoa	4¢	Ham	4¢
Banana	2¢	Lettuce	3¢
Pie	5¢	Bread and butter	1¢
Orange	3¢	Cheese	2¢
Baked Beans	4¢	Baked Apple	5¢

1. Tom has 10¢ to spend for his lunch. Look at the above prices and tell three things he can get.

2. Name two things he could get for 5¢.

3. If he selected a glass of milk, bread and butter, and a baked apple, what would his lunch cost?

4. How much change would he have from a dime (10¢)?

5. Mary had a lettuce sandwich, a cup of cocoa, and a piece of pie. What did her lunch cost?

6. Frank ate a chicken sandwich and an orange, and drank a glass of milk. What did he pay?

7. Grace bought a cheese sandwich, a banana, and a glass of milk. How much did her lunch cost?

8. How much change would Grace get from a dime?

9. Otto ate soup, a lettuce sandwich, and baked beans. What did he pay for his lunch?

10. Eva bought a ham sandwich, an orange, and a glass of milk. How much did she pay?

11. Fred had baked beans, bread and butter, and a piece of pie. What did he pay?

12. Leo had a cup of cocoa and a lettuce sandwich. How much did he spend?

13. How much change did Leo get from a dime?

14. I had soup, bread and butter, and an orange. How much did my lunch cost me?

15. Alice ate a banana and a chicken sandwich, and drank a glass of milk. What did her lunch cost?

41. Written Problems.

1. A dealer pays $29 each for sewing machines. He sells them for $42 each. How much does he make on every one he sells?

2. A music teacher buys a second-hand piano for $66 and sells it for $92. How much does he make?

3. Mr. Frost bought a box of roses for $7.50. Many of them faded. He received $2.75 for those he sold. How much did he lose?

4. Mr. Thomas gave a man a wagon worth $95 and received a boat in exchange. He sold the boat for $69. How much did he lose?

5. Tom's father bought a barrel of gasoline for $4.05. He sold it for $7.12. How much did he make?

6. My pony cost me $63. I sold him for $90. How much did I make?

7. A man had 72¢ in his purse. He spent 35¢ for his lunch. How much money did he have left?

8. There were 52 pencils in a box. We used 38 of them. How many were not used?

9. There were 27 roses in one vase, 14 in another, and 16 in another. How many roses were there in the three vases?

10. Jack is 48 inches tall. His father is 22 inches taller. How tall is his father?

SUPPLEMENTARY EXAMPLES

I. Addition.

1. 155+31+318+209+60   **3.** 438+97+105+34+267

2. 8+365+79+302+234   **4.** 85+137+509+124+58

5. $3.72	**6.** $5.67	**7.** $2.56	**8.** $1.07	**9.** $ .23
4.93	.90	1.08	.23	5.07
.18	3.08	.34	3.85	.14
4.05	1.24	2.27	1.72	1.92
1.23	.35	1.95	.24	.84

II. Subtraction.

1. 7,600 − 5,900   **6.** 907 − 829

2. 8,200 − 3,500   **7.** $10.00 − $3.08

3. 1,230 − 399   **8.** $5.80 − $3.68

4. 4,800 − 968   **9.** $35.00 − $8.63

5. 2,300 − 998   **10.** $13.50 − $9.77

III. Multiplication.

1. 16×2   **5.** 28×2   **9.** 36×2   **13.** 39×2   **17.** 47 ×2

2. 341×2   **6.** 112×4   **10.** 110×5   **14.** 101×7   **18.** 234×2

3. 439×2   **7.** 246×2   **11.** 102×8   **15.** 442×2   **19.** 112×7

4. 248×2   **8.** 346×2   **12.** 239×2   **16.** 332×2   **20.** 228×2

READING NUMBERS; COUNTING

42. Oral Exercises.

1. Read the following numbers:

2,700	205	370	980	201
3,400	8,900	1,100	610	3,900
4,100	$89.15	$20.10	$30.01	$7.15

2. In the number 2,860, what place does the 6 occupy? What place does the 8 occupy? What place does the 2 occupy?

The number 2,860 is read "two thousand eight hundred sixty."

3. Read:

2,740	8,110	1,710	9,770
3,110	4,280	5,550	4,160
6,290	7,190	1,110	2,220

4. Read the following Roman numbers: XII IV XI III XVII IX VIII XIV XVIII XV

5. Count by 3's from 2 to 50.

6. Count by 2's from 84 to 36.

7. Count by 5's from 55 to 100.

8. Count by 3's from 68 to 92.

9. Count by 4's from 20 to 84.

WRITING NUMBERS

43. Written Exercises.

Write the following numbers in a column, placing units under units, tens under tens, etc.

> Three hundred three.
> Four thousand four hundred forty.
> Six thousand nine hundred ten.
> One thousand nine hundred ninety.
> Two thousand two hundred twenty.
> Seven thousand three hundred forty-two.
> Two thousand two hundred twenty-two.

ADDITION

44. Oral Exercises.

1. Review the addition work of last week, on page 37.

2. Give answers rapidly :

5	3	9	3	4
4	6	2	5	6
3	4	5	3	5

11	2	4	7	8
5	6	5	4	5
6	4	2	6	6

45. Written Exercises.

Write and add :

1. 246	2. 103	3. 209	4. 77	5. 386
309	17	146	183	29
67	9	470	28	246
137	194	69	439	128
59	207	84	243	75

6. One dollar and seventy-eight cents,
    Two dollars and forty-nine cents,
    One dollar and seventy-three cents,
    Three dollars and six cents.

7. Three dollars and fifty cents,
    Twenty-seven cents,
    Two dollars and eighteen cents,
    Sixty-nine cents.

8. $3.26, $4.09, $.29, and $2.68.

9. $2.59, $3.07, $56, and $1.55.

SUBTRACTION

46. Oral Exercises.

1. Review the subtraction work of last week on page 38.

2. Give answers rapidly :

20	20	20	20	20
− 4	− 6	− 3	− 2	− 5

21	21	21	21	21
− 5	− 3	− 6	− 4	− 2

3. Subtract at sight :

22	22	22	22	22
− 6	− 5	− 3	− 2	− 4

23	23	23	23	23
− 4	− 6	− 3	− 5	− 2

24	24	24	24	24
− 5	− 2	− 4	− 6	− 3

47. Written Exercises.

1.	3,520	2.	5,000	3.	2,000	4.	1,000	5.	2,460
	−2,680		−4,820		− 999		− 1		− 578

6. Subtract $2.77 from $5.00.

7. From $12.01 subtract $11.99.

8. Subtract $3.56 from $10.00.

9. Subtract $6.14 from $7.13.

MULTIPLICATION

48. Oral Exercises.[1]

1. Count by 4's from 0 to 48.

3. How many are four 4's?

2. How much is $4 + 4 + 4 + 4$?

4. How much is 4×4?

5. Learn the following table:

MULTIPLICATION TABLE OF FOURS	
One 4 is 4	$1 \times 4 = 4$
Two 4's are 8	$2 \times 4 = 8$
Three 4's are 12	$3 \times 4 = 12$
Four 4's are 16	$4 \times 4 = 16$
Five 4's are 20	$5 \times 4 = 20$
Six 4's are 24	$6 \times 4 = 24$
Seven 4's are 28	$7 \times 4 = 28$
Eight 4's are 32	$8 \times 4 = 32$
Nine 4's are 36	$9 \times 4 = 36$
Ten 4's are 40	$10 \times 4 = 40$
Eleven 4's are 44	$11 \times 4 = 44$
Twelve 4's are 48	$12 \times 4 = 48$

[1] To THE TEACHER. In developing the table of 4's, follow the plan used in developing the table of 2's in § 15, Ex. 8, and in § 16, Ex. 1, on pages 22 and 23.

6. Learn this table:

Four 1's are 4	$4 \times 1 = 4$
Four 2's are 8	$4 \times 2 = 8$
Four 3's are 12	$4 \times 3 = 12$
Four 4's are 16	$4 \times 4 = 16$
Four 5's are 20	$4 \times 5 = 20$
Four 6's are 24	$4 \times 6 = 24$
Four 7's are 28	$4 \times 7 = 28$
Four 8's are 32	$4 \times 8 = 32$
Four 9's are 36	$4 \times 9 = 36$
Four 10's are 40	$4 \times 10 = 40$
Four 11's are 44	$4 \times 11 = 44$
Four 12's are 48	$4 \times 12 = 48$

7. Prove by addition that

(a) 4×2 is the same as 2×4

(b) 4×1 is the same as 1×4

(c) 4×5 is the same as 5×4

(d) 4×7 is the same as 7×4

(e) 4×9 is the same as 9×4

(f) 4×6 is the same as 6×4

8. Give answers:

$4 \times 6 + 1 =$	$4 \times 2 + 1 =$	$2 \times 7 + 1 =$
$3 \times 4 + 1 =$	$4 \times 8 + 1 =$	$4 \times 0 + 1 =$
$4 \times 9 + 1 =$	$4 \times 4 + 1 =$	$4 \times 7 + 2 =$
$4 \times 9 + 3 =$	$4 \times 4 + 2 =$	$4 \times 0 + 3 =$
$4 \times 3 + 3 =$	$4 \times 8 + 2 =$	$4 \times 2 + 3 =$
$4 \times 5 + 1 =$	$4 \times 1 + 1 =$	$7 \times 2 + 1 =$

9. If there are 4 boys in a group, how many boys will there be in 7 such groups? In 5 groups? In 4? In 6?

49. Written Exercises.

1.	230 × 4	**4.**	260 × 2	**7.**	207 × 4	**10.**	264 × 2	**13.**	114 × 6
2.	309 × 2	**5.**	250 × 2	**8.**	206 × 4	**11.**	214 × 7	**14.**	121 × 5
3.	345 × 2	**6.**	215 × 4	**9.**	240 × 4	**12.**	204 × 8	**15.**	241 × 9

50. Oral Problems.

1. Will has 18 marbles and Fred has 6 more. How many marbles has Fred?

2. Ned sold 16 papers and Joe sold 7 more than Ned. How many papers did Joe sell?

3. Rose has 5¢ and Jennie has 14¢ more than Rose. How much has Jennie?

4. There were 6 roses in a vase and Mary put 15 more in the vase. How many roses were there in the vase then?

5. I counted 14 stars while Tom counted 6 more than I. How many did Tom count?

6. Jack played 4 games of marbles on Monday, 3 games on Tuesday, 6 games on Wednesday, and 5 games on Thursday. How many games of marbles did he play in the four days?

7. Fred's mother sent him to the store with 25¢. He bought a quart of berries for 12¢. How much change should he receive?

8. Edward made a box that cost him 17 cents. He sold it for 25 cents. How much did he make?

9. George has 25 stamps and Harry has 7 stamps. How many stamps have the two boys together?

10. If I buy a snow shovel for 50 cents and sell it for 40 cents, how much do I lose?

51. Written Problems.

1. Morris has 24 cents and Hans has 19 cents more than Morris. How many cents has Hans?

2. We burned 38 tons of coal during the month of February. In January we burned 16 tons more than in February. How many tons did we burn during January?

3. In our dancing club we have 37 pupils. There were 46 more in the club last term. How many pupils were there in the club last term?

4. There were 19 roses on one bush and 36 more on the second bush. How many roses were there on the second bush?

5. The cooking class used 87 eggs this week. Last week they used 25 eggs more. How many did they use last week?

6. In the 1A grade there are four classes. The first class has 39 pupils, the second 42, the third 37, and the fourth 52. How many pupils are there in all the classes of the grade?

7. John had 90 marbles. He gave away 57 of them. How many are left?

8. A fruit dealer paid 58 cents a basket for grapes and sold them for 65¢. How much did he make on each basket he sold?

9. John had $32 in the bank. His father gave him $27; his mother gave him $9; he earned $3. How much did he then have?

10. John spent $25 for a watch. How much money did he have left? (See Ex. 9.)

READING NUMBERS; COUNTING

52. Oral Exercises.

1. Read the following numbers:

3,520	3,790	4,900	3,800
407	808	5,550	3,980
2,420	8,880	909	1,110

2. In the number 3,027, the 7 stands in units' place, the 2 in tens' place, and the 3 in thousands' place. In what place does the 0 stand? When we read this number, we do not read anything in hundreds' place.

3,027 is read "three thousand twenty-seven."

3. In the number 3,007, we have 0's in what places? Therefore, in reading this number we read nothing in hundreds' place and nothing in tens' place.

3,007 is read "three thousand seven."

3,207 is read "three thousand two hundred seven."

4. Read:

5,055	2,022	4,096	7,032	8,089
5,005	2,002	4,006	7,002	8,009
5,505	2,202	4,906	7,302	8,809

5. Count by 3's from 50 to 101.

6. Count by 2's from 61 to 89.

7. Count by 3's from 6 to 30.

8. Count by 4's from 28 to 72.

WRITING NUMBERS

53. Written Exercises.

Write the following numbers:

1. Eight thousand one hundred.
2. Seven thousand six hundred forty.
3. Five thousand eight hundred eleven.
4. Nine thousand eight hundred sixty.
5. Four thousand seven hundred seventeen.
6. Three thousand seventy-three.
7. Three thousand seven.
8. Four thousand four hundred four.
9. Four thousand four hundred forty.
10. Nine thousand forty-one.

ADDITION

54. Oral Exercises.

1. Using the Addition Chart, add 5 to each number, beginning at the top of each column and going down the column. Give the sums only.

2. Add 4 to each number in the same way.

3. Give sums rapidly:

7	6	4	3	5
3	5	7	6	7
6	3	2	6	6
17	26	13	12	24
6	5	5	7	5
4	6	4	6	3

55. Written Exercises.

1.	2.	3.	4.	5.
2,560	3,790	2,680	1,259	387
9	287	946	3,006	1,006
876	2,046	1,037	573	922
207	29	297	28	2,040
2,045	1,653	405	4,862	579

6.	7.	8.	9.	10.
$62.47	$ 7.25	$ 2.46	$ 3.74	$ .87
.38	62.08	30.78	27.09	10.09
6.92	3.25	.04	.88	5.34
30.40	5.67	27.69	.53	.57
1.25	.86	8.75	69.38	8.00

11. Find the sum of two thousand nine, seven hundred twenty, four thousand six hundred seventy-eight, and nine hundred thirty-six.

12. Add:

> Thirty dollars and thirty cents,
> Twenty-four dollars and seventy-nine cents,
> Fourteen dollars and eight cents,
> Seven dollars and seventy cents.

SUBTRACTION

56. Oral Exercises.

1. Using the Subtraction Chart, subtract 5 from each number larger than 5.

2. Give answers rapidly:

30	31	32	33	34	35
− 5	− 5	− 5	− 5	− 5	− 5

30	31	32	33	34	35
− 3	− 3	− 3	− 3	− 3	− 3

30	31	32	33	34	35
− 4	− 4	− 4	− 4	− 4	− 4

3. Subtract:

30	31	32	33	34	35
6	6	6	6	6	6

30	31	32	33	34	35
7	7	7	7	7	7

30	31	32	33	34	35
2	2	2	2	2	2

4. Give the correct number in place of the (?).

8	?	20	9	?	8
+ ?	+ 9	+ ?	+ ?	+ 6	+ ?
15	12	40	14	11	13

6	7	13	20	6	?
+ ?	+ ?	+ ?	+ ?	+ ?	+ 4
13	12	19	50	12	11

5. $25 - ? = 18$

    $? - 9 = 5$

    $15 - ? = 12$

    $? - 6 = 15$

    $11 - ? = 8$

6. $13 - ? = 6$

    $? - 25 = 25$

    $? - 9 = 13$

    $12 - ? = 4$

    $? - 6 = 8$

57. Written Exercises.

1. 2,706	**2.** 3,000	**3.** 2,500	**4.** 2,670	**5.** 3,900
−1,207	− 201	−1,049	−1,654	−1,401

6. From $72.50 subtract $11.79.

7. From fifty dollars and seven cents subtract forty-nine dollars and twelve cents.

8. Take $3.50 from $5.47.

9. From $8.02 take 59 cents.

10. Subtract $12.97 from $50.

MULTIPLICATION

58. Oral Exercises.

1. Repeat the multiplication table of fours.

2. Give answers:

4	0	4	5	4	11
× 5	× 4	× 9	× 4	× 6	× 4

3	6	4	4	9	7
× 4	× 4	× 11	× 3	× 4	× 4

3. Answer rapidly:

0 × 4 =	4 × 12 =	4 × 11 =	4 × 10 =
4 × 2 =	12 × 4 =	11 × 4 =	10 × 4 =
2 × 4 =	4 × 1 =	4 × 7 =	4 × 8 =
3 × 4 =	1 × 4 =	7 × 4 =	8 × 4 =

4. Give answers:

$4 \times 5 + 2 =$ $4 \times 0 + 2 =$ $4 \times 6 + 2 =$ $2 \times 4 + 2 =$
$2 \times 6 + 2 =$ $4 \times 9 + 2 =$ $2 \times 9 + 2 =$ $4 \times 3 + 2 =$
$4 \times 7 + 2 =$ $4 \times 4 + 2 =$ $2 \times 7 + 2 =$ $2 \times 8 + 2 =$
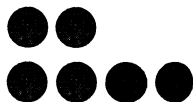
59. Written Exercises.

Find products:

1.	356	4.	369	7.	908	10.	862	13.	422
	× 2		× 2		× 2		× 4		× 6

2.	470	5.	708	8.	384	11.	422	14.	241
	× 4		× 2		× 4		× 7		× 5

3.	586	6.	832	9.	796	12.	244	15.	240
	× 4		× 4		× 2		× 8		× 9

DIVISION

60. Oral Exercises.

1. If one pencil costs 2 cents, how many pencils could you buy for 4 cents?
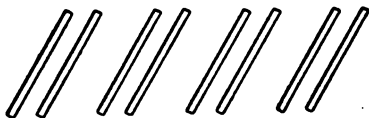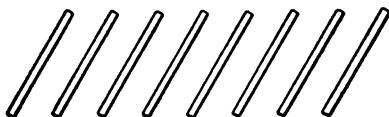
1 costs

? for

2. How many 2's are there in 4?

3. Six boys are standing in a row. How many groups of two each could you make of them?

4. How many 2's in 6?

5. You have eight splints and arrange them in bunches of two each. How many bunches will you have?

6. How many 2's in 8?

●●●●●●●●●●

7. You divide 10 pennies equally between 2 girls. How many pennies will each girl get?

8. How many 2's in 10?

Instead of saying, "How many 2's in 10?" we sometimes say, "How many times is 2 contained in 10?" or "Divide 10 by 2."

We write this 10 ÷ 2. The sign ÷ is read "divided by" and is called the **sign of division.**

9. By the use of splints, find how many 2's there are in 12. In 16. In 14. In 24. In 20. In 18. In 22. In 10.

In $2 \times 5 = 10$, the 2 and the 5 are called **factors** of 10.

10. When 2 is one factor, find the other factor in each of the following: 18, 12, 16, 4, 14, 22, 8, 6, 24, 10.

11. Supply the missing numbers:

$2 \times ? = 4$	$2 \times ? = 10$	$2 \times ? = 2$	$2 \times ? = 18$
$2 \times ? = 6$	$2 \times ? = 20$	$2 \times ? = 16$	$2 \times ? = 22$
$2 \times ? = 8$	$2 \times ? = 12$	$2 \times ? = 24$	$2 \times ? = 14$

12. Learn this table:

DIVISION TABLE OF TWOS	
$2 \div 2 = 1$	$14 \div 2 = 7$
$4 \div 2 = 2$	$16 \div 2 = 8$
$6 \div 2 = 3$	$18 \div 2 = 9$
$8 \div 2 = 4$	$20 \div 2 = 10$
$10 \div 2 = 5$	$22 \div 2 = 11$
$12 \div 2 = 6$	$24 \div 2 = 12$

61. Oral Problems.

1. Bob has 19 cents and James has 5 cents less than Bob. How much has James?

2. Leon has 25 cents. Ned has 6 cents less than Leon. How much has Ned?

3. George has 23 marbles. Jack has 4 less than George. How many has Jack?

4. A classroom has 42 seats. 5 seats are vacant. How many are occupied?

5. There are 43 children in one class. On Monday 6 were absent. How many were present?

6. There were 25 boxes on a wagon and 6 fell off. How many were left?

7. Of the 17 trees near our school, 4 have nests in them. How many are without nests?

8. Fred had a quarter of a dollar. He spent 19 cents. How much change should he receive?

9. Mary gave a party. She invited 15 children, but 6 stayed away. How many children went to Mary's party?

10. There were 20 words in our spelling lesson. I failed on 6. How many words did I spell correctly?

62. Written Problems.

1. Fred has $76 in the bank. Jack has $19 less than Fred. How much has Jack?

2. John sold 84 newspapers last week and 16 less this week. How many did he sell this week?

3. Mary spelled 82 words and Grace spelled 17 less than Mary. How many words did Grace spell?

4. There are 86 pages in a book. I have read 29 pages. How many pages have I still to read?

5. There are 72 trees in an orchard. 38 are apple trees. How many other trees are there?

6. In a country school there are 92 children. 39 are boys. How many girls are there?

7. There are 93 trolley-poles on our street. 26 of them are painted. How many are not painted?

8. In the school garden there are 47 rose bushes and 28 other bushes. How many bushes are there in all?

9. My father's gas bill for September was $2.25. For October it was $3.20, and for November it was $4.35. How much was it for the three months?

10. Mrs. Hall bought a bookcase for $29.75, a table for $10.50, and a desk for $15.98. How much did she spend?

SUPPLEMENTARY EXAMPLES

I. Addition.

1. 2,973	2. 2,746	3. 3,256
286	177	1,009
4,054	844	872
62	3,079	4,563
895	538	28

4. $59.02 + $7.67 + $12.08 + $.59 = ?

5. 3,084 + 276 + 89 + 2,007 + 2,978 = ?

6. 768 + 11 + 2,056 + 3,795 = ?

II. Subtraction.

1. 3,006	3. 9,016	5. 5,909	7. 2,705
− 2,877	− 5,709	− 3,987	− 1,897

2. 9,020	4. 2,815	6. $9.54	8. $24.19
− 3,837	− 1,897	− 2.17	− 17.82

III. Multiplication.

1. 923 × 4	6. 1,404 × 6	11. 424 × 6	16. 1,240 × 7
2. 769 × 2	7. 4,937 × 2	12. 242 × 9	17. 1,924 × 4
3. 578 × 4	8. 1,242 × 8	13. 214 × 8	18. 1,730 × 4
4. 906 × 4	9. 2,746 × 2	14. 224 × 7	19. 1,424 × 7
5. 296 × 2	10. 3,809 × 2	15. 421 × 5	20. 4,839 × 2

READING NUMBERS; COUNTING

63. Oral Exercises.

1. Read:

3,027	4,009	2,001	3,011	3,701
7,007	7,070	7,700	7,777	9,091

2. Read:

$30.30 $3.07 $30.03 $29.09 $99.01 $70.70

3. Count by 2's from 49 to 1.

4. Count by 3's from 26 to 62.

5. Count by 5's from 10 to 70.

6. Count by 3's from 34 to 67.

WRITING NUMBERS

64. Written Exercises.

Write:

    1. Seven thousand forty-one.

    2. Eight thousand eight.

    3. Four thousand eighteen.

    4. One thousand eleven.

    5. Six thousand sixty.

6. Nine thousand ninety.

7. Nine thousand ninety-nine.

8. Three dollars and three cents.

9. Thirty dollars and thirty cents.

10. Two thousand two hundred two.

ADDITION

65. Oral Exercises.

1. Using the Addition Chart, add 6 to each number, going down each column.

2. Add 5 in the same way.

3. Add 4 in the same way.

4. Give answers rapidly:

6	2	7	3	2	3	6	5	4	5
5	5	6	7	7	6	4	3	5	6
7	6	7	4	5	7	7	5	4	6

66. Written Exercises.

	1.	2.	3.	4.	5.
	$ 6.79	$12.99	$19.32	74	8
	13.08	51.62	.69	2,069	6,301
	29.60	8.07	50.31	408	296
	.11	6.14	.19	316	14
	24.09	.01	5.70	4,970	87

	6.	7.	8.	9.	10.
	$17.23	$27.48	4,607	695	307
	8.96	6.92	23	1,414	4,598
	64.08	.47	908	78	1,475
	.01	2.83	260	545	207
	7.68	38.46	17	19	43

11. Add:

    Six dollars and eleven cents,
    Fourteen dollars and ninety cents,
    Twenty dollars and two cents,
    Seventeen dollars and seventeen cents,
    Forty-four dollars and forty-four cents.

12. Find the sum of

    Two thousand twenty-nine,
    Forty-seven,
    Eight hundred eight,
    Six,
    Three thousand three hundred thirteen.

SUBTRACTION

67. Oral Exercises.

1. Using the Subtraction Chart, subtract 6 from each number larger than 6, beginning at the top of each column.

2. Subtract 5 from each number larger than 5.

3. Subtract 4 from each number larger than 4.

4. Give answers rapidly to the following:

41	41	41	41	41	41	41	41
− 5	− 7	− 0	− 2	− 6	− 4	− 3	− 1

42	42	42	42	42	42	42	42
− 6	− 4	− 0	− 5	− 7	− 1	− 3	− 2

43	43	43	43	43	43	43	43
− 6	− 0	− 1	− 5	− 7	− 4	− 2	− 3

40	40	40	40	40	40	40	40
− 4	− 6	− 1	− 7	− 5	− 3	− 0	− 2

68. Written Exercises.

1.	3,502	2.	5,000	3.	2,002	4.	2,000	5.	3,672
	−3,496		− 17		−1,468		− 2		−2,986

6. From $98.01 take $97.99.

7. Subtract $8.56 from $10.00.

8. From forty dollars and forty cents subtract thirty-eight dollars and nineteen cents.

9. From ten dollars subtract ten cents.

10. Seventeen dollars minus seventeen cents equals what?

MULTIPLICATION

69. Oral Exercises.

1. Repeat the multiplication table of fours.

2. Answer rapidly:

$7 \times 4 =$	$4 \times 0 =$	$4 \times 6 =$	$9 \times 2 =$
$4 \times 7 =$	$0 \times 2 =$	$6 \times 4 =$	$8 \times 4 =$
$2 \times 6 =$	$0 \times 4 =$	$12 \times 4 =$	$4 \times 8 =$
$6 \times 2 =$	$7 \times 2 =$	$4 \times 12 =$	$2 \times 8 =$
$2 \times 0 =$	$2 \times 7 =$	$2 \times 9 =$	$8 \times 2 =$

3. Give answers to the following:

$2 \times 6 + 1 =$	$4 \times 0 + 2 =$	$4 \times 9 + 1 =$
$2 \times 8 + 2 =$	$2 \times 0 + 2 =$	$4 \times 5 + 1 =$
$4 \times 7 + 2 =$	$4 \times 8 + 2 =$	$2 \times 9 + 2 =$
$3 \times 2 + 2 =$	$4 \times 6 + 1 =$	$2 \times 7 + 1 =$

70. Written Exercises.

Multiply:

1.	630 × 4	3.	809 × 4	5.	2,408 × 4	7.	1,404 × 5	9.	421 × 8
2.	767 × 2	4.	2,016 × 2	6.	1,424 × 3	8.	1,404 × 7	10.	442 × 9

DIVISION; HALVES

71. Oral Exercises.

When we cut an apple into *two* equal parts, we say we have divided it into *halves*.

Each part is called *one half*.

One half is written $\frac{1}{2}$.

If we divide a dollar equally between two boys, we give each boy one half of a dollar.

1. If we divide 4 cents equally between two boys, each boy gets one half of 4 cents. How many cents does each boy get?

$\frac{1}{2}$ of 4 cents is 2 cents.

2. Draw a circle and divide it into halves. Cut out the halves and show that they are equal.

3. If a pound of sugar costs 6 cents, what does half a pound cost?

$\frac{1}{2}$ of 6 cents = 3 cents.

You will notice that taking one half of a number is the same thing as dividing the number by 2.

4. Read and learn the following:

DIVISION TABLE OF TWOS		
$2 \div 2 = 1$	or	$\frac{1}{2}$ of 2 = 1
$4 \div 2 = 2$	or	$\frac{1}{2}$ of 4 = 2
$6 \div 2 = 3$	or	$\frac{1}{2}$ of 6 = 3
$8 \div 2 = 4$	or	$\frac{1}{2}$ of 8 = 4
$10 \div 2 = 5$	or	$\frac{1}{2}$ of 10 = 5
$12 \div 2 = 6$	or	$\frac{1}{2}$ of 12 = 6
$14 \div 2 = 7$	or	$\frac{1}{2}$ of 14 = 7
$16 \div 2 = 8$	or	$\frac{1}{2}$ of 16 = 8
$18 \div 2 = 9$	or	$\frac{1}{2}$ of 18 = 9
$20 \div 2 = 10$	or	$\frac{1}{2}$ of 20 = 10
$22 \div 2 = 11$	or	$\frac{1}{2}$ of 22 = 11
$24 \div 2 = 12$	or	$\frac{1}{2}$ of 24 = 12

5. If one factor is 2, find the other factor in each of **the** following numbers: 18 12 4 6 14 8 10 24 16 20

72. Written Exercises.

Divide 26 by 2.

2)26	$2 \div 2 = 1$. Write the 1 below the 2.
13	$6 \div 2 = 3$. Write the 3 below the 6.
	When we divide 26 by 2, the answer is 13.

The number 2 is called the **divisor**.

The number 26 is called the **dividend**.

The answer in division is called the **quotient**.

Notice that *in division we begin at the left,* while *in multiplication we begin at the right.*

Work the following examples:

1. 2)28	**5.** 2)68	**9.** 2)48	**13.** 2)246	**17.** 2)240
2. 2)46	**6.** 2)44	**10.** 2)82	**14.** 2)468	**18.** 2)806
3. 2)64	**7.** 2)62	**11.** 2)60	**15.** 2)824	**19.** 2)640
4. 2)42	**8.** 2)84	**12.** 2)80	**16.** 2)402	**20.** 2)802

21. In the example 26 ÷ 2, multiply the answer 13 by 2. What do we get? If we get 26, we have proved that our division is correct.

To prove division, *multiply the quotient by the divisor.* The result will be the same as the dividend, if the work is correct.

22. Prove the first ten examples above.

73. Oral Problems.[1]

1. Amy has 6 cents. Jane has 2 times as much. How much has Jane?

2. Amy has 6 cents. Mary has 4 times as much. How much has Mary?

3. Jack found 8 chestnuts under a tree. Fred found 4 times as many. How many chestnuts did Fred find?

4. James had 20 marbles. Edward had $\frac{1}{2}$ as many. How many marbles did Edward have?

[1] To THE TEACHER. Let the children make up problems similar to Ex. 4, using tops, stamps, cents, etc. Apples, books, etc., may be used in making problems similar to Ex. 7. Ex. 10 also may be used as a model.

5. Mr. Black paid $9 for a blanket and twice as much for a harness. How much did he pay for the harness?

6. Mary read 9 pages in her book. Tom read 4 times as many pages. How many pages did Tom read?

7. There are 18 roses on the table. $\frac{1}{2}$ of them are red. How many are red?

8. Jane is 8 years old. Her mother is 4 times as old. How old is her mother?

9. Three boys went fishing. John caught 6 fish, Will caught 5, and Edward caught 4. How many fish did they catch in all?

10. Bob, the newsboy, sold 20 papers on Saturday and 7 less on Monday. How many did he sell on Monday?

74. Written Problems.

1. There are 58 boys in the 3 A class. Last term there were twice as many. How many boys were there in the 3 A class last term?

2. There are 49 white chickens on the farm and four times as many brown ones. How many brown chickens are there on the farm?

3. In an orchard there are 36 plum trees and four times as many apple trees. How many apple trees are there in the orchard?

4. Frank earned $76 one month and twice as much the second month. How much did he earn the second month?

5. Mr. Black paid $45 for a wagon and twice as much for a pony. How much did he pay for the pony?

6. John has $68; Frank has twice as much. How much has Frank?

7. Eva has 37 beads on her chain. Mary has twice as many on hers. How many beads are there on Mary's chain?

8. Jack paid $.75 for a ball, $1.25 for a bat, $.98 for a glove, and $2.45 for a suit. What did his baseball outfit cost?

9. Harry has saved $85. Tom has saved $27 less than Harry. How much has Tom saved?

10. A farmer paid $75 for a wagon and sold it for $93. How much did he make?

EIGHTH WEEK

READING NUMBERS; COUNTING

75. Oral Exercises.

1. Read:

2,050   3,001   2,501   6,820   8,008   8,080

2. Read: $20.02 $1.01 $79.11 $65.05 $70.07

3. Read: XVI XIX IX IV XI XIV XVIII XX

4. Count by 2's from 99 to 49.

5. Count by 2's from 31 to 81.

6. Count by 3's from 32 to 74.

7. Count by 4's from 24 to 72.

WRITING NUMBERS

76. Written Exercises.

Write:

1. One thousand one.

2. One thousand eleven.

3. One thousand one hundred one.

4. Nine thousand forty-two.

5. Eight thousand five.

6. Four dollars and four cents.

7. Seventy dollars and seven cents.

8. One dollar and one cent.

9. Seven thousand seven hundred seventy-seven.

10. Six thousand nine hundred seventy-six.

ADDITION

77. Oral Exercises.

1. Using the Addition Chart, add 7 to each of the numbers, beginning at the top of each column and going down.

2. Add 6 in the same way.

3. Give the sums rapidly :

5	6	7	2	3
7	3	2	9	4
6	8	7	8	8

5	6	2	3	7
3	2	7	4	2
7	8	7	6	8

78. Written Exercises.

1.	5,302	2.	686	3.	257	4.	$37.02	5.	27
	26		2,043		1,096		7.99		809
	673		29		820		18.75		7,074
	2,040		4,792		47		10.27		685
	868		245		6,309		7.48		37

6. $17.97 + $.02 + $74.28 + $6.19 + $2.45 = ?

7. Add:

> Four dollars and twenty-seven cents,
> Forty dollars and forty cents,
> Seventeen dollars and seventeen cents,
> Nine dollars and seventy-five cents.

SUBTRACTION

79. Oral Exercises.

1. Using the Subtraction Chart, subtract 7 from each number larger than 7, beginning at the top of each column.

2. Subtract 6 in the same way.

3. Give answers rapidly:

41	61	11	71	21
− 8	− 8	− 8	− 8	− 8

47	67	17	77	27
− 8	− 8	− 8	− 8	− 8

46	86	16	76	26
− 8	− 8	− 8	− 8	− 8

42	62	12	72	22
− 8	− 8	− 8	− 8	− 8

4. Give the differences at sight:

43	63	13	73	23
− 8	− 8	− 8	− 8	− 8

45	65	15	75	35
− 8	− 8	− 8	− 8	− 8

40	60	10	70	30
− 8	− 8	− 8	− 8	− 8

44	64	14	74	34
− 8	− 8	− 8	− 8	− 8

80. Written Exercises.

1.	2,000	2.	7,070	3.	4,004	4.	1,000	5.	3,071
	− 99		−6,999		− 25		− 1		−1,856

6. 5,007 minus 1,569 equals what?

7. From ten dollars subtract nine dollars and fifty-six cents.

8. Subtract seventy-nine cents from five dollars and five cents.

MULTIPLICATION

81. Oral Exercises.

1. Repeat the multiplication table of fours.

2. Give answers rapidly:

2 × 6 =	0 × 4 =	4 × 7 =	4 × 5 =
6 × 2 =	4 × 0 =	7 × 4 =	5 × 4 =
7 × 2 =	2 × 0 =	4 × 6 =	4 × 8 =
2 × 7 =	0 × 2 =	6 × 4 =	8 × 4 =

3. Give answers to the following:

$4 \times 9 + 1$	$4 \times 6 + 2$	$4 \times 0 + 2$	$2 \times 5 + 1$
$2 \times 7 + 2$	$2 \times 8 + 2$	$2 \times 6 + 1$	$4 \times 8 + 2$
$2 \times 9 + 1$	$4 \times 7 + 1$	$4 \times 11 + 2$	$2 \times 12 + 1$

82. Written Exercises.

1. 2,356	**3.** 1,908	**5.** 1,057	**7.** 1,240	**9.** 424
$\times$ 2	$\times$ 4	$\times$ 2	$\times$ 8	$\times$ 9
2. 3,702	**4.** 2,256	**6.** 1,042	**8.** 1,204	**10.** 1,240
$\times$ 2	$\times$ 4	$\times$ 5	$\times$ 6	$\times$ 6

DIVISION; FOURTHS

83. Oral Exercises.

1. If one pencil costs 4 cents, how many pencils can you buy for 8 cents?

2. How many 4's are there in 8?

3. Twelve girls are standing in a row. How many groups of four each could you make of them?

4. How many 4's are there in 12?

5. You have 16 apples to divide equally among 4 boys. How many apples will each boy get?
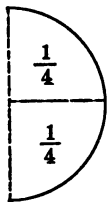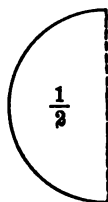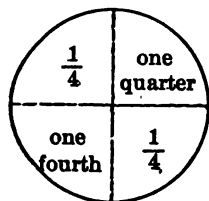
6. Divide 16 by 4. How many 4's in 16? $16 \div 4 = ?$

7. Divide an orange into 2 equal parts. What is each part called?

8. Divide each half into two equal parts. Into how many parts has the orange been divided?

9. Each part is called *one fourth* or *one quarter*. It is written $\frac{1}{4}$.

Equal parts of a unit, such as $\frac{1}{2}$ and $\frac{1}{4}$, are called **fractions**.

10. Divide 4 into 4 equal parts. What is each part? What is $\frac{1}{4}$ of 4?

11. Divide 20 by 4. What is $\frac{1}{4}$ of 20?

Notice that when we divide a number by 4, we are finding $\frac{1}{4}$ of it.

12. Learn this table:

DIVISION TABLE OF FOURS		
$4 \div 4 = 1$	*or*	$\frac{1}{4}$ of 4 = 1
$8 \div 4 = 2$	*or*	$\frac{1}{4}$ of 8 = 2
$12 \div 4 = 3$	*or*	$\frac{1}{4}$ of 12 = 3
$16 \div 4 = 4$	*or*	$\frac{1}{4}$ of 16 = 4
$20 \div 4 = 5$	*or*	$\frac{1}{4}$ of 20 = 5
$24 \div 4 = 6$	*or*	$\frac{1}{4}$ of 24 = 6
$28 \div 4 = 7$	*or*	$\frac{1}{4}$ of 28 = 7
$32 \div 4 = 8$	*or*	$\frac{1}{4}$ of 32 = 8
$36 \div 4 = 9$	*or*	$\frac{1}{4}$ of 36 = 9
$40 \div 4 = 10$	*or*	$\frac{1}{4}$ of 40 = 10
$44 \div 4 = 11$	*or*	$\frac{1}{4}$ of 44 = 11
$48 \div 4 = 12$	*or*	$\frac{1}{4}$ of 48 = 12

13. If one factor is 4, find the other factor in each of the following: 16, 8, 12, 36, 24, 4, 48.

14. If one factor is 2, find the other factor in each of the following: 12, 8, 4, 0, 6, 2, 18.

84. Written Exercises.

Copy and work out the following examples:

1. 4)84	**5.** 4)408	**9.** 2)866	**13.** 2)406	**17.** 2)808
2. 4)48	**6.** 4)840	**10.** 2)480	**14.** 2)428	**18.** 2)624
3. 4)80	**7.** 4)480	**11.** 2)620	**15.** 2)680	**19.** 2)846
4. 4)804	**8.** 2)424	**12.** 2)842	**16.** 2)482	**20.** 2)420

21. Prove Exs. 1–10.

85. Oral Problems.

> TYPE PROBLEM.   At 2¢ each, what will 9 tops cost?
> SOLUTION.   The cost of 9 tops is 9 times the cost of 1 top. Therefore the cost of 9 tops is 9 × 2¢, or 18¢.

1. At 8 cents a yard, what will 4 yards of ribbon cost?

2. How much will 8 pencils cost at 2 cents each?

3. At $4 each, what will 9 hats cost?

4. How much do 9 two-cent stamps cost?

5. What will 7 lemons cost at 2 cents each?

6. How much will twelve two-cent stamps cost?

7. At 4 cents each, how much will 6 oranges cost?

8. What will 7 balls cost at 4 cents each?

9. Find the cost of 5 pints of milk at 4 cents a pint.

10. Mary paid 2 cents apiece for roses. If she bought 7, how much did she pay for them?

PLAYING STORE

86. Oral Problems.

Our teacher let us play store. Fred was the storekeeper and we used the school material to sell. We had toy money and Fred made change. He put a list of the articles for sale and prices on the blackboard like this:

Pencil	3¢	Eraser	2¢
Pad	4¢	Photo paste	10¢
Ink	6¢	Crayons	8¢
Penholder	3¢	Blank book	7¢
Inkstand	15¢	Pen	2¢
Mucilage	5¢	Pencil box	9¢

How much did we pay if we bought

1. A pad and a pencil?

2. Eleven pens?

3. A pencil box and crayons?

4. Four pencil boxes?

5. Two blank books?

6. A penholder, an eraser, and a blank book?

7. An inkstand and photo paste?

8. Six erasers?

9. Four bottles of ink?

10. A bottle of mucilage and a blank book?

11. Two boxes of crayons?

12. Six pads?

13. Four blank books?

14. Eight pads?

15. A bottle of ink, a box of crayons, and an eraser?

87. Written Problems.

1. How much will 93 chairs cost at $4 each?

2. My skates cost $4. How much will 27 pairs cost?

3. The wall maps in our school cost $4 each. What would 48 of them cost?

4. What will 19 loads of wood cost at $4 a load?

5. The tailor used 27 yards of cloth at $2 a yard. How much did the cloth cost him?

6. Frank bought 76 pairs of shoes for members of the running teams. He paid $4 for each pair. How much did he pay for all?

7. We pay 4 cents a spool for cotton. What will 18 spools cost?

8. What will 57 yards of silk cost at $2 a yard?

9. There are 96 pins on one paper. How many pins are there on 2 such papers?

10. Frank pays $28 per month for room and board. How much will he pay in 4 months?

SUPPLEMENTARY EXAMPLES

I. Addition.

1. Find the sum of   625,   4,096,   77,   928,   2,160.

2. Add   37,   862,   3,075,   4,609,   523.

3. 2,680 + 99 + 3 + 5,079 + 278 = ?

4. What is the sum of   6,853,   42,   809,   770,   465 ?

II. Subtraction.

1. 2,560 − 2,459 = ?   **2.** 1,006 − 279 = ?

3. Six dollars minus ninety-seven cents equals what amount?

4. Take two dollars and seventy-five cents from six dollars.

5. From ten dollars and eighteen cents take eight dollars and eight cents.

6.	**7.**	**8.**	**9.**	**10.**
9,501	3,892	8,259	1,902	4,901
− 3,876	− 1,875	− 7,287	− 1,876	− 2,978

III. Multiplication.

1. 2,908 × 2	6. 2,424 × 3	11. 2,486 × 2	16. 4,387 × 2
2. 3,579 × 2	7. 4,976 × 2	12. 1,907 × 4	17. 3,874 × 2
3. 2,419 × 4	8. 1,204 × 8	13. 4,945 × 2	18. 1,442 × 3
4. 3,789 × 2	9. 1,424 × 5	14. 3,098 × 2	19. 2,895 × 2
5. 1,980 × 4	10. 3,956 × 2	15. 2,364 × 4	20. 3,687 × 2

IV. Division.

1. 4)848	3. 2)644	5. 2)840	7. 2)422	9. 4)808
2. 4)488	4. 4)448	6. 2)268	8. 4)884	10. 2)286

NINTH WEEK

READING NUMBERS; COUNTING

88. Oral Exercises.

1. Read the following:

3,022	7,001	$9.09	4,040
7,070	$98.98	3,001	3,640
$12.01	4,602	2,256	$90.90

2. Count by 3's from 49 to 1.

3. Count by 2's from 41 to 73.

4. Count by 2's from 68 to 32.

5. Count by 3's from 29 to 14.

WRITING NUMBERS

89. Written Exercises.

Write:

1. Six thousand six.

2. Six thousand sixty.

3. Six thousand six hundred sixty.

4. One thousand fourteen.

5. One thousand forty-three.

6. Two thousand twenty-nine.

7. Two thousand nineteen.

8. Four dollars and four cents.

9. Twenty dollars and twenty cents.

10. Fifty-seven dollars and ninety-nine cents.

ADDITION

90. Oral Exercises.

1. Using the Addition Chart, begin at the top of each column and add 7 to each number.

2. Add 5 in the same way.

3. Add 3 in the same way.

4. Add rapidly:

4	3	4	3	4
9	6	2	9	3
8	7	8	8	8

5	6	7	9	6
6	3	2	4	5
6	7	8	7	8

91. Written Exercises.

1.	2,867	2.	672	3.	3,575	4.	2,878
	409		89		92		304
	36		4,026		507		3,543
	5,765		6		2,678		79
	1,004		2,700		36		206

5.	330	6.	2,763	7.	476	8.	$17.24
	2,746		947		3,962		36.08
	28		3,912		87		27.79
	982		26		2,477		9.02
	2,490		107		625		16.75

SUBTRACTION

92. Oral Exercises.

1. Using the Subtraction Chart, begin at the top of each column and subtract 7 from each number greater than 7.

2. Subtract 5 in the same way.

3. In the same way subtract 3.

4. Give answers rapidly:

31	51	81	91	61	71
− 8	− 8	− 8	− 8	− 8	− 8

82	92	32	52	72	62
− 8	− 8	− 8	− 8	− 8	− 8

5. Give the difference:

34	54	84	94	74	64
− 8	− 8	− 8	− 8	− 8	− 8

85	95	35	65	55	75
− 8	− 8	− 8	− 8	− 8	− 8

56	86	96	57	87	97
− 8	− 8	− 8	− 8	− 8	− 8

93. Written Exercises.

1.	3,000	**2.**	3,216	**3.**	2,070	**4.**	$50.75
	− 2,999		− 1,376		− 1,396		− 40.99

5. From five dollars take four dollars and sixty-five cents.

6. Eight dollars minus eight cents equals what?

MULTIPLICATION

94. Oral Exercises.

1. Repeat the multiplication table of fours.

2. Give answers:

$4 \times 5 =$	$4 \times 0 =$	$2 \times 8 =$	$2 \times 0 =$
$5 \times 4 =$	$0 \times 4 =$	$8 \times 2 =$	$0 \times 2 =$
$2 \times 7 =$	$4 \times 1 =$	$4 \times 4 =$	$4 \times 6 =$
$7 \times 2 =$	$1 \times 4 =$	$2 \times 2 =$	$6 \times 4 =$

3. Give answers:

$4 \times 6 + 2$	$4 \times 0 + 2$	$4 \times 4 + 2$	$4 \times 12 + 1$
$4 \times 8 + 3$	$0 \times 4 + 3$	$2 \times 10 + 1$	$4 \times 2 + 3$
$2 \times 7 + 1$	$2 \times 12 + 2$	$3 \times 4 + 3$	$2 \times 9 + 1$
$4 \times 9 + 3$	$4 \times 11 + 2$	$4 \times 7 + 2$	$4 \times 5 + 2$

95. Written Exercises.

1. $\quad 2{,}756 \times \quad 2$	4. $\quad 4{,}708 \times \quad 2$	7. $\quad 1{,}410 \times \quad 7$	10. $\quad 2{,}144 \times \quad 3$
2. $\quad 1{,}944 \times \quad 4$	5. $\quad 2{,}330 \times \quad 4$	8. $\quad 1{,}404 \times \quad 5$	11. $\quad 1{,}242 \times \quad 5$
3. $\quad 2{,}069 \times \quad 4$	6. $\quad 424 \times \quad 8$	9. $\quad 422 \times \quad 9$	12. $\quad 1{,}879 \times \quad 2$

DIVISION; FRACTIONS; MEASUREMENTS

96. Oral Exercises.

When we speak of 12 nails, 12 pads, 12 eggs, 12 oranges, or 12 other things taken together we call it a *dozen.*

12 things = one dozen.

Dozen may be written *doz.*

1. How many are half a dozen oranges?

2. How many are a quarter of a dozen bananas?

When the grocer weighs out a pound of coffee for you, he must give you 16 ounces.

16 ounces = one pound.

Pound may be written *lb.   Ounce* may be written *oz.*

3. How many ounces are there in half a pound of sugar?

4. How many ounces in a quarter of a pound of tea?

5. What is $\frac{1}{2}$ of 16?   Of 12?

6. What is $\frac{1}{4}$ of 12?   Of 16?

7. Divide 20 by 4.   What is $\frac{1}{4}$ of 20?

8. Divide 36 by 4.   What is $\frac{1}{4}$ of 36?

9. Divide 28 by 4.   What is $\frac{1}{4}$ of 28?

10. Divide 18 by 2.   What is $\frac{1}{2}$ of 18?

11. Divide 24 by 2.   What is $\frac{1}{2}$ of 24?

97. Written Exercises.

Copy and work:

1. 4)844
4. 2)848
7. 2)228
10. 4)880

2. 2)442
5. 2)622
8. 2)264
11. 2)868

3. 2)484
6. 4)888
9. 4)484
12. 2)608

FACTORS

98. Oral Exercises.

1. If one factor is 4, find the other factor in each of the following products: 32, 44, 16, 28, 20, 4, 44.

2. If one factor is 2, find the other factor in each of the following products: 2, 16, 12, 22, 20, 24, 10.

99. Oral Problems.

> TYPE PROBLEM. At 2¢ each, how many apples can I buy for 16¢?
>
> SOLUTION. I can buy as many apples as there are 2's in 16, or 8 apples.

1. Oranges are 2 cents each. How many can I buy for 20 cents?

2. How many cakes of soap, at 4 cents a cake, can I buy for 36 cents?

3. When bread is 4¢ a loaf, how many loaves can I buy for 20¢?

4. Our school badges cost 4 cents each. How many can I buy for 24 cents?

5. How many 4-cent pencils can you get for 28 cents?

6. Fred has 16 cents to buy 2-cent postage stamps. How many can he buy?

7. A boy received 32 cents for books which he sold at 4 cents each. How many books did he sell?

8. Tom spent 14 cents for tops. He paid 2 cents each for them. How many tops did he get?

9. How many pints of milk, at 4 cents a pint, can you get for 16 cents?

10. At $2 a pair, how many pairs of gloves can be bought for $18?

100. Written Problems.

1. At $4 a barrel, how many barrels of potatoes can I buy for $84?

2. Apples are 2 cents each. How many can I get for 48 cents?

3. How many yards of cloth, at $2 per yard, can I buy for $68?

4. Our baseball suits cost $4 each. How many suits can we get for $48?

5. Tickets for the "Men's Club" dinner were $2 each. How many were sold if $64 was received for tickets?

6. A small elm tree costs $4. How many such trees can we get for $80?

7. My fountain pen cost $2. How many could I buy with $46?

8. Mary spent 88 cents for notebooks at 4 cents each. How many did she buy?

9. Fred had 84 plants. He put them in two rows. How many plants did he put in each row?

10. How many 2-cent stamps can you get for 82 cents?

READING AND WRITING NUMBERS; COUNTING

101. Oral Exercises.

1. Read the following:

2,607	$15.05	7,002	3,101
3,001	2,067	$12.12	7,020
2,499	3,011	2,070	$6.90

2. Count by 3's from 100 to 52.

3. Count by 3's from 58 to 82.

4. Count by 5's from 75 to 25.

5. Count by 2's from 16 to 82.

102. Written Exercises.

Write: **1.** Five thousand five.

2. Five thousand fifty.

3. Five thousand fifteen.

4. Five thousand five hundred five.

5. Five thousand five hundred fifty-five.

6. Five thousand five hundred fifteen.

7. Four dollars and fourteen cents.

8. Fourteen dollars and four cents.

9. Forty dollars and forty cents.

10. Four dollars and forty cents.

ADDITION

103. Oral Exercises.

1. Using the Addition Chart, add 8 to each number, beginning with the top of each column and going down.

2. Add 6 in the same way.

3. Add 5 in the same way.

4. Give answers rapidly:

4	5	3	4	5
8	4	9	8	3
7	6	7	8	7

5	6	4	6	3
4	3	5	2	8
8	6	8	7	6

104. Written Exercises.

1. 3,742	2. 25	3. 307	4. 3,046
9	6,076	24	28
648	483	5,408	273
2,567	309	273	9
1,406	2,648	2,615	6,057

5. 2,928	6. 57	7. 856	8. $5.86
14	2,715	2,619	.97
708	291	24	1.32
553	3,609	1,897	2.58
3,586	88	38	.83

9. 695	10. 973	11. $6.95	12. $ .87
749	588	7.38	9.65
578	695	5.76	3.74
637	757	9.87	7.89
985	869	4.69	5.58

13. Add:

Three dollars and seventeen cents,
Forty dollars and eighty-nine cents,
Seventeen dollars and eight cents,
Thirty-seven dollars and twenty-five cents.

SUBTRACTION

105. Oral Exercises.

1. Using the Subtraction Chart, begin at the top of each column and subtract 8 from each number larger than 8.

2. Subtract 6 in the same way.

3. Subtract 5 in the same way.

4. Give answers rapidly:

21	21	21	21
− 6	− 8	− 7	− 9

22	22	22	22
− 6	− 8	− 7	− 9

23	23	23	23
− 6	− 8	− 7	− 9

24	24	24	24
− 6	− 8	− 7	− 9

25	25	25	25
− 8	− 6	− 7	− 9

106. Written Exercises.

1. 2,048	3. 7,400	5. 1,000	7. 2,050	9. 3,260
− 1,959	− 74	− 99	− 62	− 3,189

2. 2,000	4. 3,062	6. 2,601	8. 5,067	10. 3,205
− 9	− 1,968	− 1,857	− 4,929	− 2,306

11. Subtract eleven cents from eleven dollars.

12. From seventeen dollars and seventeen cents subtract sixteen dollars and eighty-nine cents.

13. Find the difference between eighty dollars and seven cents, and one hundred dollars.

MULTIPLICATION; MEASUREMENT [1]

107. Oral Exercises.

1. Repeat the multiplication table of fours.

2. Multiply the following numbers by 2:

3   7   11   9   6   8   12   0

2 pints (pt.) = 1 quart (qt.).
4 quarts   = 1 gallon (gal.).

[1] To THE TEACHER. Actual practice in filling measures with water is absolutely essential in giving the child a correct idea of the relative sizes of the pint, quart, and gallon measures. Pictures showing measures reduced in size are misleading to many children.

3. How many pints are there in one quart?

4. How many pints are there in 3 quarts?   6 quarts?
12 quarts?   7 quarts?   5 quarts?   8 quarts?

5. Multiply the following numbers by 4:

8   7   9   12   10   6   3   2

6. In one gallon, how many quarts are there?

7. How many quarts are there in 6 gallons?   8 gallons?
5 gallons?   3 gallons?   12 gallons?   7 gallons?

8. Give answers:

$5 \times 4 + 3 =$	$4 \times 7 + 3 =$	$3 \times 0 + 2 =$
$6 \times 4 + 2 =$	$2 \times 8 + 1 =$	$4 \times 0 + 3 =$
$2 \times 7 + 1 =$	$4 \times 12 + 3 =$	$4 \times 8 + 2 =$
$2 \times 9 + 1 =$	$4 \times 9 + 3 =$	$4 \times 10 + 3 =$

108. Written Exercises.

1. 3,796 $\times$ 2	**4.** 1,827 $\times$ 4	**7.** 442 $\times$ 8	**10.** 1,224 $\times$ 5
2. 2,345 $\times$ 4	**5.** 2,375 $\times$ 4	**8.** 424 $\times$ 7	**11.** 1,647 $\times$ 4
3. 4,908 $\times$ 2	**6.** 1,402 $\times$ 6	**9.** 1,244 $\times$ 7	**12.** 2,098 $\times$ 4

DIVISION; FRACTIONS; MEASUREMENTS

109. Oral Exercises.

If we divide a circle into 8 equal parts,
each part is called *one eighth* of the circle.
One eighth is written $\frac{1}{8}$.
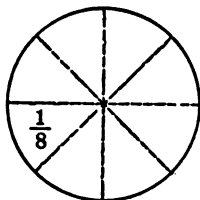
1. How many eighths are there in a
circle?

2. How many eighths are there in an apple?

3. How many eighths are there in a quarter of a circle?

4. How many eighths are there in one half of a circle?

5. How many ounces are there in half a pound?

6. How many ounces are there in a quarter of a pound?

7. How many ounces are there in one eighth of a pound?

8. $\frac{1}{8}$ of 16 = ?

9. How many are half a dozen peaches?

10. How many are a quarter of a dozen peaches?

24 hours = 1 day.

By a *day* we mean day and night, from 12 o'clock one
day to 12 o'clock the next day.

11. How many hours are there in half a day?

12. How many hours are there in a quarter of a day?

13. How many hours are there in two days?

14. If one factor is 2, find the other factor when the
product is 6, 12, 18, 24, 10, 0, 2, 8.

15. If one factor is 4, find the other factor when the prod-
uct is 16, 36, 8, 12, 44, 0, 20, 28.

110. Written Exercises.

1. Divide 2,064 by 2.   4. Divide 4,840 by 4.

2. Divide 4,084 by 4.   5. Divide 4,004 by 4.

3. Divide 6,246 by 2.   6. Divide 4,044 by 4.

7. 2)2,862   9. 2)2,468   11. 2)4,086

8. 4)4,080   10. 4)4,408   12. 2)8,468

111. Oral Problems.

$$7 \text{ days } = 1 \text{ week.}$$
$$12 \text{ months } = 1 \text{ year.}$$

1. Sam saved $2 a week for nine weeks. How much did he save in the nine weeks?

2. Mary went to the country for two weeks. How many days was she away?

3. A man worked every day for four weeks. How many days did he work?

4. Anna is 8 years old. Her sister is 2 times as old. How old is her sister?

5. I paid 4 cents for my blank book. John bought 12 books like mine. How much did he pay for his books?

6. Tom saved $4 a month for a year. How much did he save in the year?

7. What will four spools of silk cost at $.09 a spool?

8. How many 4-cent pencils can I buy for 12 cents?

9. John worked four days last week. He received $16 for his work. How much was that a day?

10. At $1.00 a pound, what will 4 oz. of candy cost? (4 oz. = $\frac{1}{4}$ lb.)

112. Written Problems.

1. A building 4 stories high has 37 windows on each floor. How many windows are there in the building?

2. A train travels 46 miles in one hour. How far will it travel in 4 hours?

3. There are 72 pens in one box. How many pens are there in 4 such boxes?

4. A boy had 2 bags of marbles with 68 marbles in each bag. How many marbles did he have all together?

5. On a city block there were 84 houses. $\frac{1}{4}$ of them were taken down to make room for a park. How many were taken down?

6. How many 4-pound bags of sugar can the grocer make with 88 lb.?

7. A father gave $68 to be divided equally between his two sons. How much did each receive?

8. A builder employs 27 men for each house he builds. How many men will he employ when he is building 4 houses?

9. A baker sold 87 pies on Monday. On Tuesday he sold 2 times as many. How many did he sell on Tuesday?

10. Mr. Brown paid $75 for a wagon and twice as much for a horse. How much did he pay for the horse?

SUPPLEMENTARY EXAMPLES

I. Addition.

1.	12	2.	3,847	3.	2,600	4.	$ 3.86
	3,034		603		1,097		29.09
	678		1,089		438		7.50
	53		536		1,073		.88
	1,007		4,897		968·		37.75

5. $9.07 + $15.80 + $.95 + $20.08 + $5.64 = ?

6. 54 + 5,863 + 400 + 1,789 + 2,076 = ?

II. Subtraction.

1.	3,200	4.	$9.82	7.	9,090	10.	$4.86
	− 2,677		− 1.97		−7,889		− 1.97
2.	5,876	5.	$10.05	8.	4,692	11.	$70.00
	− 3,097		− 4.87		−1,497		− 56.93
3.	8,080	6.	3,007	9.	$50.00	12.	$17.31
	− 1,786		−2,968		− 37.82		− 15.59

III. Multiplication.

1. 4,765 × 2	4. 1,176 × 4	7. 2,367 × 4	10. 4,099 × 2
2. 2,483 × 4	5. 4,686 × 2	8. 4,580 × 2	11. 4,796 × 2
3. 2,068 × 4	6. 3,735 × 2	9. 1,779 × 4	12. 2,387 × 4

IV. Division.

1. 4)8,400	4. 2)4,604	7. 8,048 ÷ 4	10. 4,286 ÷ 2
2. 2)6,842	5. 2)2,048	8. 4,088 ÷ 4	11. 8,608 ÷ 2
3. 2)8,024	6. 2)8,486	9. 6,208 ÷ 2	12. 6,848 ÷ 2

ELEVENTH WEEK

READING AND WRITING NUMBERS; COUNTING

113. Exercises.

1. Read the following:

| 3,050 | 5,030 | 3,005 | 5,003 | 2,002 | 2,020 |
| 2,012 | 2,022 | 2,202 | 9,070 | 1,817 | 8,009 |

2. Count by 3's from 50 to 2.

3. Count by 3's from 16 to 64.

4. Count by 2's from 73 to 39.

5. Count by 4's from 20 to 80.

6. Write the following:

Three thousand three.
Three thousand thirteen.
Three thousand three hundred.
Three thousand thirty.
Three thousand thirty-three.
Three thousand three hundred thirty-three.
Five dollars and fifty-five cents.
Five dollars and five cents.
Fifty dollars and fifty cents.
Fifty dollars and fifteen cents.

ADDITION

114. Oral Exercises.

1. Using the Addition Chart, add 9 to each number, beginning at the top of each column.

2. Add rapidly:

4	3	2	5	6
5	9	9	2	3
9	9	8	9	7
5	6	5	3	6
2	5	4	4	7
8	9	8	9	9

115. Written Exercises.

1.	3,983	2.	35	3.	2,798	4.	80
	79		6,077		73		6,439
	407		384		289		9
	2,690		1,963		946		673
	786		9		2,375		106

5.	5,963	6.	1,973	7.	$ .97	8.	$ .08
	87		2,698		19.09		8.80
	509		546		6.85		80.18
	1,876		39		25.73		6.54
	697		3,472		1.68		19.91

9. Add: Three dollars and ninety-eight cents,
Eighty-four dollars and seven cents,
Five dollars and eleven cents,
Six dollars and twenty-nine cents.

SUBTRACTION

116. Oral Exercises.

1. Using the Subtraction Chart, begin at the top of each column and subtract 9 from each number larger than 9.

2. Give answers rapidly :

21	31	43	23	33	45
− 9	− 9	− 9	− 9	− 9	− 9

24	37	47	27	34	42
− 9	− 9	− 9	− 9	− 9	− 9

26	30	40	25	32	44
− 9	− 9	− 9	− 9	− 9	− 9

35	41	20	28	38	48
− 9	− 9	− 9	− 9	− 9	− 9

117. Written Exercises.

1.	9,000	3.	7,052	5.	2,504	7.	2,100
	− 11		− 6,876		− 2,498		− 1,287

2.	1,001	4.	6,300	6.	2,002	8.	3,050
	− 909		− 6,278		− 6		− 2,561

9. Take seventy-five cents from four dollars.

10. From eighty-two dollars and eleven cents take seventy-five dollars and seventy-five cents.

11. Subtract three thousand eight hundred sixty-nine from four thousand one hundred twelve.

12. Find the difference between two thousand one hundred sixty-three and one thousand eight hundred seventy-nine.

MULTIPLICATION

118. Oral Exercises.[1]

1. Count by 3's from 0 to 36.

2. How much is $3 + 3 + 3 + 3$?

3. How many are four 3's?

4. How much is 4×3?

5. Learn this table:

MULTIPLICATION TABLE OF THREES	
One 3 is 3	$1 \times 3 = 3$
Two 3's are 6	$2 \times 3 = 6$
Three 3's are 9	$3 \times 3 = 9$
Four 3's are 12	$4 \times 3 = 12$
Five 3's are 15	$5 \times 3 = 15$
Six 3's are 18	$6 \times 3 = 18$
Seven 3's are 21	$7 \times 3 = 21$
Eight 3's are 24	$8 \times 3 = 24$
Nine 3's are 27	$9 \times 3 = 27$
Ten 3's are 30	$10 \times 3 = 30$
Eleven 3's are 33	$11 \times 3 = 33$
Twelve 3's are 36	$12 \times 3 = 36$

[1] TO THE TEACHER. In developing the table of 3's, follow the plan used in developing the table of 2's in § 15, Ex. 8, and in § 16, Ex. 1, pages 22 and 23.

6. Learn this table:

Three 1's are 3	$3 \times 1 = 3$
Three 2's are 6	$3 \times 2 = 6$
Three 3's are 9	$3 \times 3 = 9$
Three 4's are 12	$3 \times 4 = 12$
Three 5's are 15	$3 \times 5 = 15$
Three 6's are 18	$3 \times 6 = 18$
Three 7's are 21	$3 \times 7 = 21$
Three 8's are 24	$3 \times 8 = 24$
Three 9's are 27	$3 \times 9 = 27$
Three 10's are 30	$3 \times 10 = 30$
Three 11's are 33	$3 \times 11 = 33$
Three 12's are 36	$3 \times 12 = 36$

119. Oral Exercises.

1. Give answers:

$3 \times 6 = ?$ $3 \times 9 = ?$ $3 \times 5 = ?$ $3 \times 0 = ?$

$3 \times 8 = ?$ $3 \times 4 = ?$ $3 \times 12 = ?$ $3 \times 10 = ?$

$3 \times 11 = ?$ $3 \times 7 = ?$ $3 \times 3 = ?$ $3 \times 2 = ?$

2. Answer rapidly:

$3 \times 7 + 2 =$ $3 \times 10 + 1 =$ $3 \times 2 + 3 =$

$3 \times 9 + 3 =$ $3 \times 8 + 2 =$ $3 \times 0 + 3 =$

$3 \times 5 + 2 =$ $3 \times 12 + 2 =$ $3 \times 4 + 2 =$

$3 \times 1 + 2 =$ $3 \times 6 + 3 =$ $3 \times 3 + 3 =$

120. Written Exercises.

1. 265	**2.** 432	**3.** 334	**4.** 2,409
$\times \ 3$	$\times \ 6$	$\times \ 9$	$\times \ \ 4$

5.	328	**7.**	323	**9.**	2,562	**11.**	1,243
	× 3		× 7		× 2		× 8
6.	759	**8.**	343	**10.**	3,978	**12.**	4,789
	× 3		× 8		× 2		× 2

DIVISION

121. Written Exercises.

1. Divide 2,008 by 2.   4. Divide 8,000 by 4.
2. Divide 4,800 by 4.   5. Divide 8,408 by 4.
3. Divide 4,226 by 2.   6. Divide 4,008 by 4.

7. 2)4,028   9. 2)2,624   11. 2)8,600   13. 2)6,886

8. 2)6,864   10. 2)6,482   12. 4)4,480   14. 4)8,048

122. Oral Problems.

1. At 4¢ a pint, what does a gallon of milk cost?

2. At 36¢ a pound, what will $\frac{1}{4}$ pound of coffee cost?

3. Six gallons of milk are how many quarts?

4. At 6 for a cent, how many candy marbles can you buy for 4 cents?

5. A boy caught 17 fish and sold 8 of them. How many had he left?

6. It costs $4 a day for food for our family. How much does it cost for one week?

7. A boy had twenty-five cents. He bought a puzzle for 8 cents. How many cents had he left?

8. At 4¢ a dozen, how many dozen cards can be bought for 40 cents?

9. There are 9 girls present and 4 times as many boys. How many boys are present?

10. Tom is 45 inches tall. James is 7 inches shorter. How tall is James?

123. Written Problems.

1. How many quarts are there in 48 gallons?

2. There are 57 gallons of water in a tank. How many gallons would there be if 29 gallons were pumped into this tank?

3. Mary's mother bought her a dress for $5.25, a hat for $2.00, a pair of gloves for $1.50, and a pair of shoes for $3.75. How much did she spend in all?

4. A half barrel of flour weighed 98 lb. After 59 lb. were sold, how many pounds were left?

5. My store rent is $67 a month. What do I pay for 4 months' rent?

6. Jack's kite string is 98 ft. long. His brother's is twice as long. How long is the brother's kite string?

7. A factory employs 89 men and 4 times as many girls. How many girls work in this factory?

8. My grocer's bill for last week was $3.87. I paid the bill with a five-dollar gold piece. How much change should I have received?

9. John took 85 pictures last summer. 27 were not good. How many good pictures did he have?

10. An automobile can average 37 miles an hour. How far can it go in four hours, at that rate?

TWELFTH WEEK

READING AND WRITING NUMBERS; COUNTING

124. Exercises.

1. Read the following:

5,005	5,050	5,505	5,515
5,555	5,500	$5.05	$70.70
$3.02	$20.12	$16.09	$99.90

2. Read: XVII XIX XIV XVI IX XI IV XX

3. Count by 3's from 98 to 53.

4. Count by 3's from 88 to 67.

5. Count by 2's from 11 to 57.

6. Count by 2's from 57 to 11.

7. Write the following:

One thousand ten.

One thousand one hundred one.

One thousand eleven.

One thousand one hundred eleven.

One dollar and one cent.

One dollar and eleven cents.

Eleven dollars and eleven cents.

Eleven dollars and one cent.

ADDITION

125. Oral Exercises.

1. Using the Addition Chart, add 9 to each number, beginning at the top of each column.

2. Add 8 in the same way.

3. Give answers to the following :

33	46	52	67	84
+ 8	+ 6	+ 8	+ 9	+ 7

16	26	28	34	62
+ 9	+ 8	+ 7	+ 7	+ 9

17	29	36	22	39
+ 7	+ 9	+ 6	+ 8	+ 6

47	56	44	63	72
+ 8	+ 9	+ 7	+ 8	+ 9

126. Written Exercises.

1. 4,784	**2.** 16	**3.** 3,019	**4.** 1,250
36	296	805	324
1,277	8	67	978
643	2,705	1,093	69
908	4,052	586	6,386

5. 27	**6.** 50	**7.** 9	**8.** 256
648	3,076	437	769
9	2,597	5,119	5,257
6,504	2,709	568	84
46	78	75	2,063

9. Find the sum of 50, 3,076, 2,597, 2,709, and 78.

10. Add : Four dollars and four cents,
Nineteen dollars and nineteen cents,
Seventeen dollars and seventy cents,
Twenty-eight dollars and twenty-five cents.

SUBTRACTION

127. Oral Exercises.

1. Using the Subtraction Chart, begin at the top of each column and subtract 9 from each number larger than 9.

2. Subtract 8 in the same way.

3. Give answers to the following:

52	53	67	38
− 7	− 9	− 9	− 9

63	67	93	25
− 8	− 8	− 8	− 7

72	56	24	34
− 9	− 7	− 7	− 9

4. Subtract:

70	82	45	35
− 8	− 8	− 9	− 7

63	92	37	18
− 6	− 9	− 8	− 9

64	76	46	16
− 9	− 7	− 9	− 7

33	84	27	94
− 5	− 8	− 8	− 8

128. Written Exercises.

1.	1,000 − 26	3.	7,904 − 6,935	5.	1,100 − 99	7.	3,105 − 2,749
2.	2,502 − 1,573	4.	2,100 − 101	6.	5,981 − 3,993	8.	6,005 − 2,978

9. From fourteen dollars and fourteen cents take nine dollars and seventeen cents.

10. From ninety-nine dollars subtract eighty-nine dollars and eleven cents.

11. Subtract eight dollars and seventeen cents from twelve dollars.

MULTIPLICATION

129. Oral Exercises.

1. Count by 3's from 3 to 36.

2. Repeat the multiplication table of threes.

3. How many days are there in three weeks? In two weeks? In four weeks?

4. Give answers to the following:

$3 \times 5 =$	$3 \times 11 =$	$3 \times 6 =$	$3 \times 12 =$
$5 \times 3 =$	$11 \times 3 =$	$6 \times 3 =$	$12 \times 3 =$
$3 \times 7 =$	$3 \times 1 =$	$3 \times 8 =$	$3 \times 2 =$
$7 \times 3 =$	$1 \times 3 =$	$8 \times 3 =$	$2 \times 3 =$
$3 \times 0 =$	$3 \times 10 =$	$3 \times 4 =$	$3 \times 9 =$
$0 \times 3 =$	$10 \times 3 =$	$4 \times 3 =$	$9 \times 3 =$

5. Give answers:

$4 \times 7 + 2 =$	$3 \times 7 + 1 =$	$2 \times 11 + 3 =$
$3 \times 8 + 3 =$	$3 \times 11 + 3 =$	$2 \times 5 + 2 =$
$3 \times 9 + 2 =$	$3 \times 0 + 3 =$	$3 \times 3 + 3 =$
$4 \times 4 + 3 =$	$3 \times 6 + 3 =$	$4 \times 4 + 3 =$

130. Written Exercises.

1.	3,598 $\times$ 2	**4.**	1,954 $\times$ 4	**7.**	434 $\times$ 7	**10.**	423 $\times$ 9
2.	3,074 $\times$ 3	**5.**	2,976 $\times$ 3	**8.**	342 $\times$ 5	**11.**	324 $\times$ 6
3.	2,459 $\times$ 4	**6.**	4,958 $\times$ 2	**9.**	343 $\times$ 7	**12.**	243 $\times$ 9

DIVISION; FRACTIONS; MEASUREMENTS

131. Oral Exercises.

1. If one banana costs 3 cents, how many can you buy for 9 cents?

1 costs ● ● ●

? for   ● ● ●   ● ● ●   ● ● ●

2. How many 3's are there in 9?

3. Twelve cents are to be divided equally among three boys. How much will each boy get?

3 boys have ● ● ● ● ● ● ● ● ● ● ● ●

1 boy will get?

4. $12 \div 3 = ?$

When anything is divided into 3 equal parts, each part is called *one third*. *One third* is a fraction. It is written $\frac{1}{3}$.

5. What is $\frac{1}{3}$ of a dozen pears?

6. There are 12 months in a year. How many months are there in $\frac{1}{3}$ of a year?

7. $\frac{1}{3}$ of $12 = ?$

8. Fifteen boys are standing in a line. How many groups of 5 each could be formed from them?
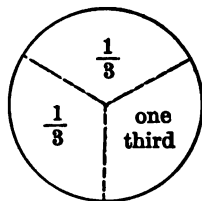
9. How many 3's are there in 15? Divide 15 by 3.

10. What is $\frac{1}{3}$ of 15?   **12.** What is $\frac{1}{3}$ of 6?

11. Divide 6 into 3 equal parts.   **13.** Divide 6 by 3.

When we divide a number by 3, we are finding $\frac{1}{3}$ of it.

14. Learn this table:

DIVISION TABLE OF THREES

$3 \div 3 =$	1	*or*	$\frac{1}{3}$ of $3 =$ 1
$6 \div 3 =$	2	*or*	$\frac{1}{3}$ of $6 =$ 2
$9 \div 3 =$	3	*or*	$\frac{1}{3}$ of $9 =$ 3
$12 \div 3 =$	4	*or*	$\frac{1}{3}$ of $12 =$ 4
$15 \div 3 =$	5	*or*	$\frac{1}{3}$ of $15 =$ 5
$18 \div 3 =$	6	*or*	$\frac{1}{3}$ of $18 =$ 6
$21 \div 3 =$	7	*or*	$\frac{1}{3}$ of $21 =$ 7
$24 \div 3 =$	8	*or*	$\frac{1}{3}$ of $24 =$ 8
$27 \div 3 =$	9	*or*	$\frac{1}{3}$ of $27 =$ 9
$30 \div 3 =$	10	*or*	$\frac{1}{3}$ of $30 =$ 10
$33 \div 3 =$	11	*or*	$\frac{1}{3}$ of $33 =$ 11
$36 \div 3 =$	12	*or*	$\frac{1}{3}$ of $36 =$ 12

15. If one factor is 3, find the other factor in each of the following products: 21, 27, 15, 9, 24, 36, 18.

16. If one factor is 2, find the other factor in each of the following: 10, 14, 20, 16, 24.

17. With one factor 4, find the other factor required to make 44, 32, 20, 40, 28.

132. Written Exercises.

Work the following examples:

1. 3)693	5. 3)369	9. 4)4,448	13. 2)8,064
2. 3)903	6. 3)390	10. 2)2,682	14. 2)6,282
3. 3)360	7. 4)4,040	11. 2)4,486	15. 2)8,246
4. 3)633	8. 4)4,844	12. 2)2,842	16. 2)6,842

133. Oral Problems.

1. At 18 cents a quart, what will a pint of vinegar cost?

2. What will ¼ lb. of butter cost at 40¢ a pound?

3. A gallon of oil costs 32 cents. What is the cost of a quart?

4. What will a half pound of coffee cost at 24 cents a pound?

5. Lemons are 36 cents a dozen. What will 4 cost? (4 = ⅓ of a dozen.)

6. Tom and Fred together sold 16 papers. Fred sold the same number as Tom.   How many did Tom sell?

7. Jack is 11 years old.   How old was he 5 years ago?

8. There were 27 apples in a basket.   Jane baked ⅓ of them.   How many did she bake?

9. How many pounds of candy are there in nine boxes each holding three pounds?

10. I paid 7¢ for a strap and 3 times as much for a knife. How much did I pay for the knife?

134. Written Problems.

1. At $.84 a pound, what will ½ lb. of candy cost?

2. Wide ribbon is $.88 a yard.   What will ¼ yd. cost?

3. Tea is $.48 a pound.   How much will a half pound cost?

4. What will ½ yard of lace cost at $.62 a yard?

5. How much did the 4 buttons on my coat cost, at $ .96 a dozen?

6. Each class flag costs $3.   What did we pay for the 48 flags for the school?

7. There are 93 pages in my Reader.   I have read ⅓ of them.   How many pages have I read?

8. Grace took 37 pencils from the storeroom.   She left in the storeroom 3 times as many.   How many pencils are there in the storeroom?

9. I paid five cents for a loaf of bread.   How much change should I get from a five-dollar bill?

10. One apple costs $.03.   How many can I get for $.63?

SUPPLEMENTARY EXAMPLES

I. Addition.

1.	2.	3.	4.
28	4,063	978	98
467	256	1,035	375
96	3,889	17	6,207
4,618	257	432	94
742	18	4,084	1,856

5. Add: 4,287, 862, 1,009, 43, and 2,567.

II. Subtraction.

1. $3,002 - 2,973 =$
2. $2,516 - 2,487 =$
3. $1,987 - 1,898 =$
4. $3,000 - \quad 3 =$
5. $2,002 - 1,003 =$
6. $9,031 - 7,585 =$
7. $9,430 - 7,827 =$
8. $4,008 - 3,279 =$
9. $6,107 - 5,098 =$
10. $3,085 - 1,978 =$
11. $2,763 - \quad 97 =$
12. $8,102 - \quad 379 =$

III. Multiplication.

1. $2,387 \times 3 = ?$
2. $2,565 \times 2 = ?$
3. $2,649 \times 3 = ?$
4. $1,670 \times 4 = ?$
5. $3,094 \times 3 = ?$
6. $2,447 \times 4 = ?$
7. $4,807 \times 2 = ?$
8. $3,686 \times 2 = ?$
9. $3,275 \times 3 = ?$
10. $2,059 \times 3 = ?$
11. $2,789 \times 3 = ?$
12. $2,178 \times 4 = ?$

IV. Division.

1. $4,484 \div 4 = ?$
2. $4,804 \div 4 = ?$
3. $309 \div 3 = ?$
4. $603 \div 3 = ?$
5. $963 \div 3 = ?$
6. $2,804 \div 2 = ?$
7. $8,620 \div 2 = ?$
8. $6,284 \div 2 = ?$
9. $4,082 \div 2 = ?$
10. $2,684 \div 2 = ?$
11. $4,628 \div 2 = ?$
12. $6,084 \div 2 = ?$

THIRTEENTH WEEK

READING AND WRITING NUMBERS; COUNTING

135. Exercises.

1. Read the following:

| 3,073 | 2,019 | 7,070 | 6,003 | 1,099 | 1,990 |
| $12.01 | $76.11 | $8.09 | $9.70 | $19.90 | $1.11 |

2. Count by 4's from 40 to 20.
3. Count by 3's from 52 to 4.
4. Count by 3's from 26 to 68.
5. Count by 5's from 30 to 85.
6. Write the following:

> Eight thousand eighty.
> Four thousand six hundred one.
> Two thousand twelve.
> Six thousand six hundred seventy.
> Three thousand three.
> Five dollars and five cents.
> Four dollars and twenty-five cents.
> Eighty dollars and eighty cents.

ADDITION

136. Oral Exercises.

1. Using the Addition Chart, add 9 to each number, beginning at the top of each column.

2. Add 8 in the same way.   3. Add 7 also.

4. Give the answers to the following:

35	23	63	59	58
+ 7	+ 7	+ 8	+ 6	+ 9

62	18	75	67	76
+ 9	+ 6	+ 9	+ 8	+ 7

77	47	28	43	67
+ 6	+ 7	+ 7	+ 6	+ 9

34	54	33	52	45
+ 8	+ 9	+ 9	+ 8	+ 8

137. Written Exercises.

1.	607	2.	36	3.	90	4.	256
	4,326		498		1,287		8,614
	398		3,609		534		98
	2,693		2,206		59		107
	85		450		4,273		64

5.	1,969	6.	937	7.	319	8.	77
	3,246		4,675		5,008		2,640
	1,762		94		93		834
	2,238		3,007		1,264		98
	607		583		927		9

9. Add: Five thousand seven,
Two thousand eight hundred nineteen,
Six hundred seventy-five,
Eighty-six,
One thousand seventy-six.

SUBTRACTION

138. Oral Exercises.

1. Using the Subtraction Chart, begin at the top of each column and subtract 9 from each number greater than 9.

2. Subtract 8 in the same way.

3. Subtract 7 in the same way.

4. Subtract :

53	32	65	63	32
− 9	− 9	− 8	− 8	− 7

64	21	28	50	67
− 9	− 9	− 8	− 8	− 7

75	73	32	73	56
− 9	− 9	− 8	− 7	− 7

5. Give the differences rapidly :

68	40	37	84	61
− 9	− 9	− 8	− 7	− 7

37	33	56	95	53
− 9	− 8	− 8	− 7	− 7

46	74	39	48	90
− 9	− 8	− 8	− 7	− 7

139. Written Exercises.

1.	2,507 − 1,769	**3.**	1,807 − 919	**5.**	4,701 − 2,895	**7.**	1,001 − 852
2.	3,003 − 2,546	**4.**	6,000 − 4	**6.**	2,005 − 1,987	**8.**	2,908 − 1,959

9. Subtract twelve cents from three dollars.

10. From sixty dollars and seventy-five cents subtract fifty-four dollars and eighty-seven cents.

MULTIPLICATION; MEASUREMENT

140. Oral Exercises.

1. Count by 3's from 3 to 36.

2. Repeat the multiplication table of threes.

3. How many months are there in 3 years? In 2 years? In 4 years?

4. How many single things are there in 3 dozen? In 4 dozen? In 2 dozen?

5. How many days are there in 3 weeks? In 2 weeks? In 4 weeks?

6. How many quarts are there in 3 gallons? In 4 gallons? In 2 gallons?

3 feet = 1 yard.

7. How many feet are there in 3 yards? In 4 yards? In 2 yards?

8. How many pints in a quart?

9. How many quarts in a gallon?

10. How many pints in a gallon?

11. How many pints in 3 gallons? In 4 gallons? In 2 gallons?

12. Give answers:

$3 \times 8 =$	$3 \times 10 =$	$3 \times 9 =$	$3 \times 5 =$
$4 \times 6 =$	$3 \times 4 =$	$4 \times 12 =$	$4 \times 7 =$
$3 \times 7 =$	$4 \times 8 =$	$2 \times 11 =$	$2 \times 8 =$
$2 \times 9 =$	$4 \times 5 =$	$3 \times 12 =$	$2 \times 5 =$

13. Give answers:

$2 \times 6 + 3 =$	$4 \times 4 + 1 =$	$2 \times 9 + 3 =$
$3 \times 7 + 2 =$	$3 \times 0 + 3 =$	$3 \times 12 + 1 =$
$3 \times 6 + 3 =$	$3 \times 8 + 2 =$	$4 \times 3 + 2 =$
$4 \times 9 + 2 =$	$4 \times 11 + 3 =$	$4 \times 0 + 3 =$

141. Written Exercises.

1. $2,607 \times 3$	4. $1,644 \times 4$	7. $2,505 \times 3$	10. $1,343 \times 5$
2. $2,960 \times 3$	5. $1,433 \times 6$	8. $1,234 \times 8$	11. 978×3
3. $4,879 \times 2$	6. $2,237 \times 4$	9. $1,334 \times 7$	12. 698×4

DIVISION; FRACTIONS; MEASUREMENT

142. Oral Exercises.

1. 18 cents is to be divided equally among 3 boys. How much will each boy get?

2. $18 \div 3 = ?$

3. How many months are there in $\frac{1}{2}$ of a year? In $\frac{1}{4}$ of a year?

4. $\frac{1}{2}$ of $12 = ?$ 5. $\frac{1}{4}$ of $12 = ?$

6. 24 boys are to be formed in lines of 4 each. How many lines will there be?

7. $24 \div 4 = ?$

8. What is $\frac{1}{3}$ of 27? $\frac{1}{2}$ of 16? $\frac{1}{4}$ of 36? $\frac{1}{3}$ of 21? $\frac{1}{2}$ of 22? $\frac{1}{4}$ of 28?

9. Divide 32 into 4 equal parts.

10. What is $\frac{1}{4}$ of 32?   11. Divide 32 by 4.

12. Find the missing factors:

One Factor	Products						Other Factor
3	12	9	15	18	30	24	?
4	16	24	36	28	20	4	?

143. Written Exercises.

1. 3)6,390   4. 3)6,909   7. 4)4,884   10. 2)8,426

2. 3)9,603   5. 4)4,808   8. 4)8,440   11. 2)2,068

3. 3)3,963   6. 4)8,084   9. 2)6,288   12. 2)6,082

144. Oral Problems.

1. James had 47 marbles. He found 8 more. How many marbles had he then?

2. David had 33 cents. He spent 9 cents for candy. How many cents has he left?

3. Apples cost 4 cents apiece. How many could I buy with 36 cents?

4. There are 36 girls in a 3 A class. How many dancing groups of 3 each could the teacher form?

5. In 4 years, how many months are there?

6. How many pints are there in 4 gallons?

7. Edward has 16 cents. John has $\frac{1}{8}$ as much. How many cents has John?

8. If cheese cost 12 cents a pound, what would 3 pounds cost? What would $\frac{1}{3}$ of a pound cost?

9. A grocer had 34 eggs in his store. How many had he left after he sold 9?

10. What will $\frac{1}{4}$ of a pound of tea cost at 48 cents a pound? How many ounces are there in $\frac{1}{4}$ lb.?

145. Written Problems.

1. James's big brother had $22. He earned $17 at one time and $39 at another time. How much had he then?

2. David went to the grocer's with a five-dollar bill. He spent one dollar and sixty-nine cents. How much change did he get?

3. A toy dealer pays $4 apiece for doll carriages. How many could he buy with $84?

4. There are 48 boys in one class. If they march in groups of 2 each, how many groups will there be?

5. There are 52 weeks in a year. How many weeks are there in 3 years?

6. If board costs four dollars a week, how much would a year's board cost?

7. Edward's father has 96 chickens on his farm. Mr. James has $\frac{1}{3}$ as many. How many has Mr. James?

8. A box contains 96 marbles. How many marbles are there in 3 such boxes?

9. A grocer had 81 eggs in a box. How many did he have left after he had sold a dozen?

10. Last month in the school lunchroom we sold 78 oranges and three times as many apples. How many apples did we sell?

FOURTEENTH WEEK

READING AND WRITING NUMBERS; COUNTING

146. Exercises.

1. Read the following numbers : 8,080   8,018   8,808
8,880   8,008   8,888 $7.02 $30.30 $17.11 $1.10

2. Count by 4's from 88 to 36.

3. Count by 3's from 89 to 23.

4. Count by 3's from 56 to 83.

5. Count by 2's from 55 to 85.

6. Count by 5's from 5 to 100.

7. Write the following :

Four thousand forty.

Three thousand three.

Seven thousand four hundred four.

Six thousand sixteen.

Eighty dollars and eight cents.

Eight dollars and eighty cents.

Eighteen dollars and eighteen cents.

Eighty-eight dollars and eighty-eight cents.

ADDITION

147. Oral Exercises.

1. Using the Addition Chart, add 9 to each number, in order.

2. Add 4 in the same way.

3. Find the sums:

63	38	72	86	66
+ 8	+ 7	+ 9	+ 9	+ 6

71	45	54	29	37
+ 9	+ 8	+ 7	+ 6	+ 6

36	74	43	75	46
+ 7	+ 8	+ 9	+ 6	+ 8

55	59	24	57	35
+ 9	+ 7	+ 6	+ 8	+ 7

148. Written Exercises.

1. 48	2. 4,263	3. 7	4. 39
4,609	9	304	7,256
866	778	5,976	807
709	2,069	1,089	1,536
2,062	437	762	9

5. 375	6. 278	7. 25	8. 6
4,706	5,097	1,009	2,507
28	17	863	25
2,390	846	5,095	689
659	1,204	863	2,562

9. Find the sum of 4,263, 9, 778, 2,069, and 437.

10. 278 + 5,097 + 17 + 846 + 1,204 = ?

11. Find the sum of

Nine dollars and nine cents,
Forty dollars and fourteen cents,
Seven dollars and seventy-seven cents,
Eighteen dollars and sixty cents.

SUBTRACTION

149. Oral Exercises.

1. Using the Subtraction Chart, subtract 9 from each number greater than 9.

2. Subtract 4 in the same way.

3. Subtract:

73	64	70	27	46	78
− 9	− 9	− 6	− 8	− 9	− 9

24	32	50	47	92	64
− 6	− 8	− 9	− 9	− 6	− 8

22	33	61	30	72	35
− 9	− 6	− 8	− 6	− 8	− 9

45	73	56	59	91	81
− 6	− 8	− 8	− 8	− 9	− 6

150. Written Exercises.

1.	3,002	2.	2,078	3.	1,001	4.	4,271
	− 1,346		− 1,289		− 94		− 3,967

5. 9,840	**6.** 5,032	**7.** 5,050	**8.** 2,222
− 2,367	− 2,928	− 4,065	− 1,333

9. From seventy dollars and seventy cents take thirty dollars and seventy-five cents.

10. Subtract one cent from ten dollars.

11. From twenty dollars take nine dollars and eight cents.

12. From eighteen dollars subtract seven dollars and twenty cents.

13. From fourteen dollars subtract three dollars and ninety-one cents.

14. Take away two thousand four from three thousand three.

MULTIPLICATION

151. Oral Exercises.[1]

1. Count by 5's from 0 to 60.

2. How much is $5 + 5 + 5$?

3. How many are three 5's?

4. How many are 3×5?

5. How many are 5×3?

---

[1] To THE TEACHER. In developing the table of 5's, follow the plan used in developing the table of 2's in § 15, Ex. 8, and in § 16, Ex. 1, pages 22 and 23.

6. Learn this table:

MULTIPLICATION TABLE OF FIVES	
One 5 is 5	$1 \times 5 = 5$
Two 5's are 10	$2 \times 5 = 10$
Three 5's are 15	$3 \times 5 = 15$
Four 5's are 20	$4 \times 5 = 20$
Five 5's are 25	$5 \times 5 = 25$
Six 5's are 30	$6 \times 5 = 30$
Seven 5's are 35	$7 \times 5 = 35$
Eight 5's are 40	$8 \times 5 = 40$
Nine 5's are 45	$9 \times 5 = 45$
Ten 5's are 50	$10 \times 5 = 50$
Eleven 5's are 55	$11 \times 5 = 55$
Twelve 5's are 60	$12 \times 5 = 60$

7. Learn this table:

Five 1's are 5	$5 \times 1 = 5$
Five 2's are 10	$5 \times 2 = 10$
Five 3's are 15	$5 \times 3 = 15$
Five 4's are 20	$5 \times 4 = 20$
Five 5's are 25	$5 \times 5 = 25$
Five 6's are 30	$5 \times 6 = 30$
Five 7's are 35	$5 \times 7 = 35$
Five 8's are 40	$5 \times 8 = 40$
Five 9's are 45	$5 \times 9 = 45$
Five 10's are 50	$5 \times 10 = 50$
Five 11's are 55	$5 \times 11 = 55$
Five 12's are 60	$5 \times 12 = 60$

Notice that when we multiply by 5, every product ends in 5 or 0.

8. Multiply:

$5 \times 6 =$	$5 \times 9 =$	$5 \times 5 =$	$5 \times 0 =$
$5 \times 8 =$	$5 \times 4 =$	$5 \times 12 =$	$5 \times 10 =$
$5 \times 11 =$	$5 \times 7 =$	$5 \times 3 =$	$5 \times 2 =$

9. Give answers rapidly:

$5 \times 9 + 4 =$	$5 \times 10 + 4 =$	$5 \times 0 + 4 =$
$5 \times 7 + 3 =$	$5 \times 8 + 2 =$	$5 \times 4 + 2 =$
$5 \times 5 + 2 =$	$5 \times 12 + 1 =$	$5 \times 3 + 3 =$
$5 \times 1 + 3 =$	$5 \times 2 + 3 =$	$5 \times 6 + 4 =$

152. Written Exercises.

1.	430	**4.**	3,743	**7.**	1,243	**10.**	535
	$\times\ 5$		$\times\ 2$		$\times\ 6$		$\times\ 9$
2.	572	**5.**	3,756	**8.**	1,204	**11.**	1,837
	$\times\ 5$		$\times\ 3$		$\times\ 9$		$\times\ 5$
3.	809	**6.**	2,379	**9.**	1,432	**12.**	3,189
	$\times\ 3$		$\times\ 4$		$\times\ 7$		$\times\ 3$

DIVISION; FRACTIONS; MEASUREMENT

153. Oral Exercises.

1. Thirty-six marbles are to be divided equally among 4 boys. How many marbles will each boy get?

2. $36 \div 4 = ?$ **3.** $\frac{1}{4}$ of $36 = ?$

4. There are 30 days in the month of June. How many days are there in $\frac{1}{3}$ of that month?

5. How many yards are there in 21 feet?

It takes 3 feet to make 1 yard. In 21 feet, there are as many yards as there are 3's in 21. How many 3's in 21?

6. What is $\frac{1}{2}$ of 16? Of 8? Of 4? Of 12? Of 18?

7. What is $\frac{1}{4}$ of 16? Of 8? Of 4? Of 12? Of 24?

8. What is $\frac{1}{3}$ of 21? Of 15? Of 24? Of 18? Of 36?

9. Have a rapid drill in division, using the chart. (See page 10.)

10. Find the missing factors:

ONE FACTOR	PRODUCTS						OTHER FACTOR
2	12	18	24	8	16	2	?
3	3	21	6	27	33	36	?
4	8	36	12	48	32	44	?

154. Written Exercises.

1. 3)6,903   **4.** 3)9,036   **7.** 2)4,662   **10.** 2)6,806

2. 3)3,690   **5.** 2)4,084   **8.** 2)2,864   **11.** 3)9,396

3. 3)3,009   **6.** 4)4,888   **9.** 2)6,048   **12.** 3)6,039

155. Oral Problems.

1. In February, there are generally 28 days. How many days are there in $\frac{1}{4}$ of February?

2. There were 50 sheep in a field. Nine were taken away. How many were left?

3. There are 35 boys in a 3 A class. If 9 more are admitted, how many will the class then have?

4. John has 9 pigeons. Harry has 5 times as many. How many pigeons has Harry?

5. Twenty-four cents is to be divided equally among 3 girls. How much will each girl get?

6. What is the cost of a dozen oranges at 3 cents apiece?

7. What would half a dozen oranges cost at the same price (Ex. 6)?

8. There are 44 gallons of molasses in a barrel. How many gallons would there be if 8 gallons were added?

9. How many cents are there in 8 nickels? (1 nickel = 5 cents.)

10. How many ounces in $\frac{1}{4}$ of a pound?

156. Written Problems.

1. If there are 96 days in a school term, how many days are there in $\frac{1}{3}$ of a term?

2. There were 83 sheep in a field. 56 were taken out. How many were left?

3. There are three 3 A classes in a school. In one class there are 28 boys, in another 37 boys, and in the third 29 boys. How many boys are there in the three classes?

4. John has 56 pigeons. Harry has 5 times as many. How many pigeons has Harry?

5. Eighty-eight dollars is to be divided equally among 4 men. How much will each get?

6. What is the cost of 75 basket balls at $3 each?

7. What would half a pound of tea cost at 68 cents a pound?

8. There are 38 gallons of oil in a barrel. If 23 gallons were added, how many gallons would there be in the barrel?

9. How many cents are there in 17 nickels?

10. There are 48 oranges in a crate. How many are there in half of this crate?

SUPPLEMENTARY EXAMPLES

I. Addition.

1.	2.	3.	4.
8	3,060	1,054	39
3,604	39	827	267
829	867	12	7,458
76	4,208	5,876	18
2,794	256	597	324

5. Add: Two thousand seventy-seven,
   Thirty-eight,
   Six hundred forty,
   Three thousand six hundred eight,
   Five.

6. $5,680 + 795 + 4,867 + 3,457 + 2,527 =$

II. Subtraction.

1. $7,000 - 11$	5. $4,697 - 3,895$	9. $4,672 - 2,950$
2. $3,057 - 1,058$	6. $5,207 - 2,281$	10. $9,375 - 4,897$
3. $2,113 - 1,333$	7. $2,568 - 1,347$	11. $1,283 - 1,194$
4. $1,060 - 382$	8. $9,010 - 8,008$	12. $6,021 - 3,536$

III. Multiplication.

1. 673×5	4. 462×5	7. $2,839 \times 3$	10. $3,078 \times 3$
2. 944×5	5. 198×5	8. $4,955 \times 2$	11. $1,796 \times 5$
3. 278×5	6. $1,767 \times 4$	9. $1,983 \times 4$	12. $1,987 \times 3$

IV. Division.

1. $3,930 \div 3$	4. $6,069 \div 3$	7. $8,840 \div 4$	10. $6,028 \div 2$
2. $3,360 \div 3$	5. $8,004 \div 4$	8. $8,062 \div 2$	11. $4,880 \div 4$
3. $9,369 \div 3$	6. $4,848 \div 4$	9. $4,806 \div 2$	12. $8,846 \div 2$

FIFTEENTH WEEK

READING AND WRITING NUMBERS; COUNTING

157. Exercises.

1. Read the following numbers:

6,016	6,616	6,006	6,060
$12.12	$90.90	$1.01	$7.75

2. Count by 5's from 5 to 75.

3. Count backward by 5's from 60 to 5.

4. Count by 4's from 0 to 48.

5. Count backward by 3's from 38 to 2.

6. Count backward by 4's from 48 to 0.

7. Count backward by 3's from 37 to 1.

8. Write the following:

        Four thousand five.
        Five thousand forty.
        Five thousand five hundred four.
        Four thousand fifteen.
        Five thousand five hundred forty.
        Three dollars and one cent.
        Seventy dollars and seventy cents.
        Seventeen dollars and nine cents.

133

ADDITION

158. Oral Exercises.

1. Using the Addition Chart, add 6 to each number, beginning at the top of each column.

2. Add 7 in the same way.

3. Add rapidly:

54	91	37	8	63	83
+ 7	+ 9	+ 9	+ 65	+ 9	+ 8

57	6	72	29	87	7
+ 8	+ 78	+ 8	+ 6	+ 6	+ 39

37	25	36	46	35	62
+ 6	+ 7	+ 7	+ 8	+ 6	+ 9

159. Written Exercises.

1.	**2.**	**3.**
26	5,280	3,407
3,908	637	535
743	29	1,096
870	2,583	623
4,875	738	89

4.	**5.**	**6.**
$ .04	$37.50	76
47.80	.19	3,904
3.67	48.27	267
5.09	9.90	1,098
28.56	5.75	549

7. Find the sum of

        Five thousand twenty-nine,

        Two thousand eight hundred seventy-seven,

        One thousand seven hundred six,

        Sixteen,

        Four hundred ninety-three.

SUBTRACTION

160. Oral Exercises.

1. Using the Subtraction Chart, subtract 6 from each number greater than 6.

2. Subtract 7 in the same way.

3. Subtract:

91	54	76	40	21	73
− 6	− 6	− 7	− 5	− 5	− 6

71	24	20	72	75	81
− 6	− 7	− 5	− 6	− 6	− 7

62	96	40	63	41	34
− 7	− 5	− 6	− 7	− 7	− 5

51	95	61	62	83	50
− 6	− 7	− 5	− 5	− 5	− 7

161. Written Exercises.

1.	9,001	2.	3,062	3.	$25.08	4.	$69.28
	− 7,640		− 73		− 15.09		− .29

5.	2,703	**7.**	3,021	**9.**	5,091	**11.**	4,300
	− 1,794		− 1,988		− 3,087		− 1,874
6.	9,213	**8.**	8,016	**10.**	3,005	**12.**	5,003
	− 8,197		− 5,759		− 1,874		− 1,427

13. Two thousand forty minus one thousand forty-two equals what?

14. How much is eighteen dollars less eight dollars and sixty-nine cents?

MULTIPLICATION

162. Oral Exercises.

1. Count by 5's from 5 to 60.

2. Repeat the multiplication table of fives.

3. How many months in 5 years? In 3 years? In 4 years? In 2 years?

4. How many days in 5 weeks?

5. How many quarts in 5 gallons? How many pints in 5 gallons?

6. How many feet in 5 yards? In 4 yards? In 3 yards?

7. How many eggs in 5 dozen? In 3 dozen?

8. Give answers to the following:

3 × 9	3 × 6	3 × 4	3 × 3
5 × 8	5 × 12	5 × 11	5 × 2
2 × 6	2 × 7	2 × 12	2 × 4
5 × 4	5 × 3	5 × 6	5 × 5
4 × 7	4 × 9	4 × 8	4 × 12
5 × 9	5 × 10	5 × 0	5 × 7

9. Add 2 to 4 × 7   5 × 5   3 × 1   3 × 2

                 5 × 4   3 × 0   4 × 8   4 × 0

                 3 × 4   4 × 4   5 × 3   5 × 7

                 4 × 9   5 × 6   4 × 3   3 × 8

10. Add 1 to 4 × 7   4 × 0   4 × 4   3 × 4

                 5 × 5   5 × 4   3 × 5   5 × 8

                 4 × 3   4 × 2   4 × 8   3 × 7

                 5 × 7   5 × 0   3 × 0   4 × 9

11. Add 3 to 5 × 3   4 × 1   5 × 6   4 × 9   5 × 8

                 4 × 6   5 × 2   4 × 5   5 × 4   4 × 4

12. Add 4 to 5 × 6   5 × 1   5 × 2   5 × 4   5 × 8

163. Written Exercises.

1.   3,972   **4.**   4,859   **7.**   435   **10.**   532

    ×   2   ×   2   ×   6   ×   5

2.   1,709   **5.**   2,169   **8.**   452   **11.**   1,987

    ×   4   ×   4   ×   8   ×   5

3.   2,878   **6.**   354   **9.**   345   **12.**   869

    ×   3   ×   9   ×   7   ×   5

TIME BY THE CLOCK

164. Oral Exercises.

1. Study the clock dial. Read the Roman numerals on the dial.

2. What is the longer hand called?

3. What is the shorter hand called?
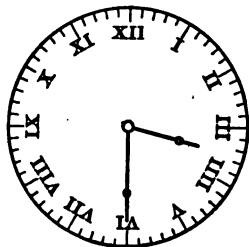
4. How long does it take the minute hand to go from XII to I? From XII to II? From XII to III? From XII to VI? From XII to IX? From XII to XII, or all around?

60 minutes = 1 hour.

Minutes is also written *min.* *Hours* is also written *hr.*

5. How many minutes are there in half an hour? In one quarter of an hour? In three quarters of an hour?

6. What time is it when both hands point to XII?

7. When the hour hand is at X and the minute hand is at XII, what time is it by the clock?

8. The hour hand is at II and the minute hand is at XII. What time is it?

9. What is the time when the hour hand is at V and the minute hand is at XII?

10. When the minute hand is at XII and the hour hand is at XI, what is the time?

11. What is the time when the minute hand is at XII and the hour hand is at IX? Where is the minute hand on every hour?

12. What is the time by the clock, when the hour hand is halfway between XII and I and the minute hand is at VI?

13. When the hour hand is halfway between VIII and IX and the minute hand is at VI?

14. When the minute hand is at VI and the hour hand is halfway between II and III?

15. When the minute hand is at VI and the hour hand is halfway between X and XI?

16. At half past any hour, where does the minute hand point?

What is the time by the clock:

17. When the minute hand is at III and the hour hand is a little past XII?

18. When the minute hand is at III and the hour hand is a little past X?

19. When the hour hand is a little past XI and the minute hand is at III?

20. When the minute hand is at III and the hour hand is a little past IX?

21. When the hour hand is a little past I and the minute hand is at III?

22. At 15 minutes (a quarter) past the hour, where does the minute hand point?

DIVISION; FRACTIONS; MEASUREMENT

165. Oral Exercises.

1. If one orange costs 5 cents, how many oranges can you buy with 20 cents?

2. How many 5's in 20?   **3.** Divide 20 by 5.

4. If 25 cents is to be divided equally among 5 girls, how many cents will each girl receive?

5. Divide 25 by 5.

6. When anything is divided into 5 equal parts, each part is called *one fifth*. It is written $\frac{1}{5}$.

7. What is $\frac{1}{5}$ of 25?

8. There are thirty boys in my class. If they stand 5 in a row, how many rows will there be?

9. $30 \div 5 = ?$

10. Thirty-five marbles are to be divided equally and placed in 5 different rings. How many marbles will there be in each ring?

11. $35 \div 5 = ?$ **12.** $\frac{1}{5}$ of $35 = ?$

13. How many minutes in an hour?

14. How many minutes in $\frac{1}{5}$ of an hour?

15. $\frac{1}{5}$ of $60 = ?$ **16.** $60 \div 5 = ?$

17. There are thirty days in the month of April. How many days are there in $\frac{1}{5}$ of the month of April? In $\frac{1}{3}$ of that month?

18. $\frac{1}{5}$ of $30 = ?$

19. Measure 10 inches with your ruler. Divide this line into 5 equal parts. How many inches in each part?

20. $10 \div 5 = ?$ **21.** $\frac{1}{5}$ of $10 = ?$

22. Learn this table:

DIVISION TABLE OF FIVES		
$5 \div 5 = 1$	*or*	$\frac{1}{5}$ of $5 = 1$
$10 \div 5 = 2$	*or*	$\frac{1}{5}$ of $10 = 2$
$15 \div 5 = 3$	*or*	$\frac{1}{5}$ of $15 = 3$
$20 \div 5 = 4$	*or*	$\frac{1}{5}$ of $20 = 4$
$25 \div 5 = 5$	*or*	$\frac{1}{5}$ of $25 = 5$
$30 \div 5 = 6$	*or*	$\frac{1}{5}$ of $30 = 6$
$35 \div 5 = 7$	*or*	$\frac{1}{5}$ of $35 = 7$
$40 \div 5 = 8$	*or*	$\frac{1}{5}$ of $40 = 8$
$45 \div 5 = 9$	*or*	$\frac{1}{5}$ of $45 = 9$
$50 \div 5 = 10$	*or*	$\frac{1}{5}$ of $50 = 10$
$55 \div 5 = 11$	*or*	$\frac{1}{5}$ of $55 = 11$
$60 \div 5 = 12$	*or*	$\frac{1}{5}$ of $60 = 12$

23. Find $\frac{1}{5}$ of

50 35 5 15 25 20 10 45 60 30 40 55

24. Divide each of the above numbers by 5.

25. If one factor is 5, find the other factor in each of the following products: 25, 5, 30, 55, 20, 35.

26. If one factor is 3, find the other factor in 18, 12, 30, 27.

27. If one factor is 4, find the other factor in 16, 36, 24, 12, 20.

166. Written Exercises.

1. Divide 105 by 5.

	In 1 there are no 5's.
	Take with 1 the next figure 0, and then ask yourself,
5)105	"How many 5's in 10?" There are 2 fives.
21	Write the 2 under the 0.
	How many 5's in 5? There is 1 five.
	Write the 1 under the 5.

2. Explain how this example is worked:
$$5)\overline{205}$$
$$\overline{41}$$

3. 5)305   **6.** 5)450   **9.** 3)2,403   **12.** 4)2,084

4. 5)1,050   **7.** 3)9,360   **10.** 4)1,240   **13.** 3)1,893

5. 5)400   **8.** 3)243   **11.** 4)2,480   **14.** 2)1,684

15. Explain Exs. 3–8.

167. Oral Problems.

1. There are 12 inches in one foot and 3 feet in one yard. How many inches in one yard?

2. How many inches in $\frac{1}{4}$ of a yard?

3. How many inches in $\frac{1}{3}$ of a yard?

4. There are 30 days in June. How many days are there in $\frac{1}{5}$ of the month of June?

5. Amy has 44 cents in her bank. If she should take out 9 cents, how much would there be left?

6. James has 83 cents in the school bank. If he should put in 9 cents more, how much would he have?

7. How many minutes in $\frac{1}{2}$ of an hour?

8. John has 24 cents. How many 3-cent tops could he buy?

9. A handball costs 2 cents. What would 9 handballs cost?

10. Look at the clock dial. What is $\frac{1}{4}$ of 60 minutes? $\frac{1}{2}$ of 30 minutes?

PLAYING STORE

168. Oral Problems.

Jack's father is in the toy business. He sent us a large box of toy fruits and vegetables so that we could play store. Our teacher fixed the prices. To-day Jack was the store-keeper and the prices were:

Apples	2¢	Carrots	2¢
Lemons	3¢	Tomatoes	4¢
Oranges	5¢	Lettuce	6¢
Pears	4¢	Bananas	1¢

1. Fred bought a dozen apples.   How much did he pay for them?

2. How much change should Jack give him from a quarter dollar?

3. Mary bought a half dozen pears.   How much should she pay?

4. Otto had a quarter and spent it for oranges.   How many should Jack give him?

5. How much should Jack charge for a half dozen tomatoes?

6. What should Jack charge for four heads of lettuce?

7. If I spent 10¢ for apples, how many should I receive?

8. Sarah had 2 dimes (20¢) and spent it all for pears. How many did she get?

9. Anna bought an orange, a pear, and an apple.   How much did they cost?

10. How much change should Jack give her from a quarter? Name the coins he could use in making this change.

11. What would 9 carrots cost? How much change would there be from a quarter?

12. Jack charged 15¢ for a head of lettuce, an orange, and a pear.   Was that correct?

13. What should he charge for a dozen tomatoes? For a dozen lemons?   A dozen oranges?   A dozen bananas?

169. Written Problems.

1. How many inches are there in 4 yards?

2. There are 32 marbles in a ring. If 29 more marbles are put in, how many marbles will there be in the ring?

3. How many minutes in $\frac{1}{3}$ of an hour?

4. There are 73 tons of coal in the school cellar. What is its value, if each ton is worth $5?

5. When 24 of these 73 tons have been burned, how many tons will be left?

6. John went to the butcher's and bought a steak for 37 cents. How much change should he get from a one-dollar bill?

7. How many 2-cent stamps could you buy with 86 cents?

8. In four hours, how many minutes are there?

9. James received $13 at Christmas, and each of his four brothers received the same amount. How much did the 5 boys receive?

10. It costs five cents to send a letter to Japan. How much will it cost to send 19 letters to Japan?

READING AND WRITING NUMBERS; COUNTING

170. **Exercises.**

1. Read the following numbers:

3,030	3,303	3,330	3,003	3,333
$4.04	$70.70	$1.16	$.90	$75.57

2. Count by 5's from 5 to 60.

3. Count backward by 5's from 60 to 5.

4. Count by 4's from 4 to 60.

5. Count backward by 4's from 52 to 0.

6. Count by 2's backward from 37 to 1.

7. Count by 3's backward from 37 to 1.

8. Write the following numbers:

Two thousand twenty-two.

Two thousand two.

Two thousand two hundred twenty.

Two thousand two hundred two.

Nine dollars and nine cents.

Ninety dollars and ninety cents.

Nineteen dollars and nineteen cents.

Ninety dollars and nine cents.

Nine dollars and nine cents.

ADDITION

171. Oral Exercises.

1. Using the Addition Chart, add 8 to each number, beginning at the top of each column.

2. Add 9 in the same way.

3. Add:

55	75	8	9	46	26
+ 6	+ 7	+ 35	+ 25	+ 7	+ 8

9	6	37	47	6	7
+ 76	+ 31	+ 8	+ 9	+ 82	+ 82

89	53	8	54	24	8
+ 9	+ 6	+ 63	+ 6	+ 7	+ 74

172. Written Exercises.

1. 3,762	2. 3,807	3. 4,792	4. 257
24	29	48	3,694
807	263	1,923	86
2,575	2,790	107	9
6	75	58	2,762

5. 248	6. $ 8.63	7. 38	8. 69
7,190	12.54	1,075	348
306	3.07	947	3,743
89	.29	5,853	86
275	60.52	238	419

9. Add :

Eighty dollars and eight cents,
Four dollars and forty-four cents,
Six dollars and seventy-five cents,
Nineteen cents,
Two dollars and twenty cents.

SUBTRACTION

173. Oral Exercises.

1. Using the Subtraction Chart, subtract 8 from each number greater than 8.

2. Subtract 9 in the same way.

3. Subtract :

31	81	41	62	32	72
− 9	− 8	− 7	− 6	− 8	− 7

41	65	45	53	73	44
− 6	− 9	− 8	− 7	− 6	− 9

64	64	24	73	73	86
− 8	− 7	− 6	− 9	− 8	− 7

56	26	66	55	35	97
− 6	− 9	− 8	− 7	− 6	− 9

97	67	60	30	40	80
− 8	− 7	− 6	− 9	− 8	− 7

174. Written Exercises.

1.	2,811	2.	7,000	3.	2,100	4.	5,555
	− 1,333		− 7		− 1,399		− 4,666

5. Take away seventy-four cents from seventy-four dollars.

6. From ten dollars take away eleven cents.

7. Two thousand forty-three less one thousand six hundred eight equals what?

8. Three dollars and fifty cents minus two dollars and seventy-eight cents equals what?

9. Find the difference between fifty-eight dollars and two cents, and thirty-nine dollars and fifteen cents.

MULTIPLICATION

175. Oral Exercises.

1. Count by 3's from 3 to 36.

2. Repeat the multiplication table of threes.

3. Count by 5's from 5 to 60.

4. Repeat the multiplication table of fives.

5. Give answers to the following:

4×6	5×12	4×9	2×3
3×9	2×7	5×3	3×5
5×7	3×6	2×8	4×11
2×9	5×5	3×11	5×0
3×7	4×12	5×10	3×3
5×6	2×6	4×2	3×0
4×3	3×12	5×11	4×10

6. Add 2 to 3×7 **7.** Add 1 to 3×9 **8.** Add 3 to 4×8

4×6	3×3	4×3
3×8	4×9	5×0
4×5	5×6	5×7
5×2	3×1	4×9
5×0	2×9	5×9
3×9	5×3	4×7
4×2	3×7	4×0
5×9	2×8	5×5
3×6	4×6	4×4

9. Add 2 to 4×3 **10.** Add 1 to 3×8 **11.** Add 4 to 5×5

5×7	4×5	5×9
3×5	2×6	5×0
4×0	3×6	5×7
5×8	5×2	5×3
3×2	5×9	2×0

176. Written Exercises.

1. 2,845 $\times$ 3	**4.** 3,758 $\times$ 2	**7.** 345 $\times$ 5	**10.** 534 $\times$ 6
2. 1,678 $\times$ 4	**5.** 1,928 $\times$ 4	**8.** 453 $\times$ 7	**11.** 503 $\times$ 8
3. 2,165 $\times$ 4	**6.** 2,476 $\times$ 3	**9.** 435 $\times$ 9	**12.** 335 $\times$ 7

TIME BY THE CLOCK

177. Oral Exercises.

1. Where are the two hands of the clock when it is twelve o'clock?

2. What time is it by the clock when the hour hand is between I and II and the minute hand points to VI?

3. When the minute hand is at IX, and the hour hand is between II and III, what time is it?

4. Where are the two hands pointing when it is six o'clock?

5. Tell the time by the school clock now.   '

6. Tell the time by the clock when

The hour hand is			*and the minute hand is*
(a) between III	and IIII		at IIII
(b) between XI	and XII		at VI
(c) between XII	and I		at IX
(d) between VII	and VIII		at V
(e) between VI	and VII		at VII
(f) between IX	and X		at III
(g) between V	and VI		at I
(h) between X	and XI		at XI
(i) between VIII	and IX		at II
(j) between IIII	and V		at IIII

DIVISION; FRACTIONS

178. Oral Exercises.

1. Divide a circle into halves, quarters, eighths, fifths, thirds.

2. Divide rapidly :

$2)\overline{12}$ $2)\overline{18}$ $2)\overline{8}$ $2)\overline{16}$ $2)\overline{10}$

$4)\overline{16}$ $4)\overline{20}$ $4)\overline{28}$ $4)\overline{36}$ $4)\overline{4}$

$3)\overline{15}$ $3)\overline{27}$ $3)\overline{12}$ $3)\overline{18}$ $3)\overline{6}$

$5)\overline{35}$ $5)\overline{60}$ $5)\overline{10}$ $5)\overline{45}$ $5)\overline{30}$

3. What is $\frac{1}{2}$ of 14, 4, 2, 20, 6?

4. What is $\frac{1}{4}$ of 24, 8, 16, 4, 40?

5. What is $\frac{1}{8}$ of 16, 8?

6. What is $\frac{1}{3}$ of 24, 30, 21, 9, 36?

7. What is $\frac{1}{5}$ of 25, 20, 55, 15, 60?

8. If we divide a number or a thing into 10 equal parts each part is called a *tenth*. *One tenth* is written $\frac{1}{10}$.

9. Measure a line 10 inches long on your paper. What is $\frac{1}{5}$ of that line? What is $\frac{1}{10}$ of that line?

10. If you divide $\frac{1}{5}$ into two equal parts, what is each part called?

11. What is $\frac{1}{10}$ of 10 inches? $\frac{1}{10}$ of 20 inches? $\frac{1}{10}$ of 30 inches? $\frac{1}{10}$ of 60 inches?

12. How many minutes in $\frac{1}{10}$ of an hour?

13. How many days in $\frac{1}{10}$ of a month of thirty days?

14. Write and then read all the fractions you know.

15. Find the missing factors:

ONE FACTOR	PRODUCTS	OTHER FACTOR
2	12, 18, 24, 16, 2	?
3	30, 12, 18, 21, 15	?
4	36, 16, 4, 28, 32	?
5	45, 20, 60, 35, 25	?

179. Written Exercises.

Work the following examples:

1. 5)4,505   4. 3)1,839   7. 4)3,248   10. 2)1,240

2. 5)2,050   5. 4)1,284   8. 2)1,042   11. 3)2,793

3. 3)1,209   6. 4)2,840   9. 2)1,686   12. 4)2,408

180. Oral Problems.

1. A baseball cost 25 cents and a bat 9 cents. What did both cost?

2. If a bat cost 9 cents, what would 5 bats cost?

3. A 35-cent baseball was reduced 8 cents in price. For how much was it sold?

4. John has 45 cents. How many 5-cent boxes of candy can he buy?

5. How many nickels are there in forty cents?

6. If you do 4 examples in an evening, how many evenings would it take you to do 32 examples?

7. A family takes 3 pints of milk daily. In how many days would the family use 36 pints?

8. Charles bought a pistol for 64 cents and a box of caps for 8 cents. How much did both cost?

9. How many pints are there in three gallons?

10. How much are 3 dimes and 2 nickels?

181. Written Problems.

1. A baseball costs 27 cents and a catcher's mitt costs 49 cents. What is the cost of both?

2. What would 3 such baseballs cost?

3. What would 5 catcher's mitts cost?

4. John has 69 apples. How many paper bags would he need for all the apples, if he put 3 in a bag?

5. Eighty-eight dollars is to be divided equally among 4 men. How much does each man receive?

6. If you can read 29 pages in an hour, how many pages can you read in 3 hours?

7. John's father is 48 years old. John is 29 years younger than his father. How old is John?

8. Charles bought a bow for 49 cents and some arrows for 38 cents. What did both cost?

9. How many quarts are there in 19 gallons?

10. Tom gave the grocer two dollars to pay a bill of fifty-four cents. How much change should he receive?

SUPPLEMENTARY EXAMPLES

I. Addition.

1. $2,962 + 34 + 867 + 3,595 + 8 = ?$

2. Add $26.20, $19.25, $76.09, $1.57, and $.10.

3. 463	4. 3,097	5. 5,762	6. 7,256
2,598	639	495	429
1,748	5,934	1,068	67
93	587	940	198
2,574	428	1,075	204

II. Subtraction.

1. $16.50 − $12.78   5. $12.82 − $9.78   9. $1,040 − 937$

2. $92.00 − $7.75   6. $9,800 − 3,672$ 10. $2,963 − 1,897$

3. $10.04 − $9.86   7. $1,920 − 875$ 11. $8,192 − 7,948$

4. $15.00 − $11.83   8. $2,685 − 1,496$ 12. $5,031 − 4,825$

III. Multiplication.

1. $1,885 \times 5$ 4. $4,389 \times 2$ 7. $1,873 \times 5$ 10. 245×9

2. $1,042 \times 5$ 5. 435×8 8. $1,986 \times 4$ 11. 354×6

3. $2,937 \times 3$ 6. $2,309 \times 4$ 9. 534×7 12. 453×8

IV. Division.

1. $2,555 \div 5$ 4. $4,005 \div 5$ 7. $1,809 \div 3$ 10. $2,040 \div 4$

2. $3,505 \div 5$ 5. $2,739 \div 3$ 8. $3,640 \div 4$ 11. $1,484 \div 2$

3. $1,050 \div 5$ 6. $2,409 \div 3$ 9. $1,684 \div 4$ 12. $2,190 \div 3$

V. Oral Problems.

1. I bought a pound of butter and used 8 ounces for a cake. How many ounces were left? What part of a pound was left?

2. Our horse is allowed 12 quarts of oats per day. How many quarts will he get in 3 days? In 4 days?

3. Besides the oats, our horse gets 14 lb. of hay each day. How many pounds of hay does he get in 2 days? In 3 days?

4. Mary is 9 yr. old, Frank 7 yr., and Otto 4 yr. What is the sum of their ages?

5. At 3¢ a cake, what will a dozen cakes cost?

6. Dan caught 8 fish while his father caught 17. How many fish did both catch?

7. Mary's mother used 9 eggs less this week than last. Last week she used 37 eggs. How many eggs did she use this week?

8. How many horseshoes are needed to shoe 8 horses?

9. There are 41 children in our class. 7 are at the blackboard while the others are at their desks. How many are at their desks?

10. There are 30 days in September and 31 days in October. How many days in both months?

11. There were 20 apples on a fruit stand. John bought ¼ of them. How many did he buy?

12. I had a dozen pencils and bought twelve more. How many pencils did I then have?

13. What must I pay for one dozen two-cent stamps.

14. Our class went to the park last Saturday. We counted 6 oak trees, 9 maple trees, and 4 willow trees. How many trees did we count in all?

15. John's father is 36 years old. John is $\frac{1}{4}$ as old. How old is John?

16. There are 31 days in March. 17 have passed. How many more days are there in March?

17. There are 48 yards of ribbon in four equal pieces. How much does each piece contain?

18. What will 8 ounces of tea cost at 40¢ a pound?

19. Milk costs 10 cents a quart. How much can I buy for 5 cents? What part of a quart is this?

20. Marbles are two for one cent. How many can I buy for a dime?

VI. Written Problems.

1. Sam has 32 marbles. Otto has 4 times as many as Sam. How many has Otto?

2. John has $1.27, Will has $.75, and Isidore has $9.63. How much have all together?

3. Fred has 61 cents and Jim has 24 cents less than Fred. How much has Jim?

4. Peter bought a knife for 23 cents. He liked it so much that he bought four more for his friends. How much did he pay for the four knives?

5. Your father buys for you and your little sister two tricycles at $2.49 each. How much does he pay for both?

6. Mr. Brown has 3 crates of chickens. In one crate are 27 chickens, in another 36, in the third 39 chickens. How many chickens in the 3 crates?

7. Etta has read 37 pages of a 92-page book. How many pages of the book has she still to read?

8. 83 books were sent to our room. 19 were old, the others new. How many new books were sent?

9. A piece of cloth contained 84 yards. It was divided into four equal parts. How many yards were there in each piece?

10. A ball of cord contains 87 feet. How many feet of cord are there in two such balls?

11. There are 58 trees in a small park and 26 trees around the park. How many trees is this in all?

12. A letter carrier walks 47 miles in a week. How far will he walk in four weeks?

13. There are 26 lamp posts on our street and twice as many on the next street. How many lamp posts are there on the second street?

14. There are 63 pages in our Reader. I have read 28 pages. How many more pages have I to read?

15. Tom sold 84 newspapers last week. His little brother sold one fourth as many. How many did his brother sell?

16. Mary had 57 cents in the School Savings Bank. Tuesday she put in 19 cents more. How much has she now in the bank? .

17. There were 67 girls at the baseball game and four times as many boys. How many boys were there at the game?

18. Otto has 78 marbles and Fred has 19 more than Otto. How many marbles has Fred?

19. Find the cost of 67 pairs of shoes at $4 a pair.

20. Tom and Charlie went to the woods to gather autumn leaves. Tom collected 86, while Charlie collected $\frac{1}{2}$ as many. How many did Charlie collect?

21. An automobile can travel 28 miles an hour. How far will it go in three hours at that rate?

22. Our grocer pays $76 a month rent. How much does he pay in 3 months?

23. The milkman delivered 87 quarts of milk on Monday, 56 quarts on Tuesday, 68 quarts on Wednesday, and 75 quarts on Thursday. How many quarts did he deliver in the four days?

24. Of the 57 girls in the class, 29 were standing. How many were not standing?

25. Mr. Black paid $75 for a wagon. He sold it for $92. How much did he make?

26. If he had sold it for $58, how much would he have lost?

27. What will 95 yd. of cloth cost at $3 a yard?

28. Mr. Smith bought a victrola for $75, records for $18, and a record stand for $13. How much did he spend?

29. How many pairs of shoes at $3 a pair can I buy for $63?

30. There are 96 yards of cord on three balls of the same size. How many yards are there on each ball?

31. Our school burned 87 tons of coal last month. The High School burned 5 times as much. How much did the High School burn?

32. There were 56 gallons of gasoline in a barrel. How many quarts were there?

33. What will $\frac{1}{4}$ lb. of tea cost at $.84 a pound? How many ounces are there in $\frac{1}{4}$ lb.?

34. How much change should the grocer give me if I gave him a two-dollar bill to pay for the tea (Ex. 33)?

35. Mary had 53 perfect papers. Jane had 17 less. How many perfect papers did Jane have?

36. What would 69 pairs of shoes cost at $5 a pair?

37. At $5 a pair, how many pairs of shoes can I buy for $55?

38. John paid $65 for his bicycle. He sold it for $49. How much did he lose?

39. Last month our school paid $38 for Readers, $65 for Histories, $97 for Geographies, and $46 for Music Books. How much did the books cost?

40. Tom's mother bought him a new outfit for the winter. She paid $.75 for gloves, $1.50 for a cap, $.65 for overshoes, and $8.25 for a rain coat. How much did she spend in all?